ORDER NO. HAD83122677C8

Service Manual

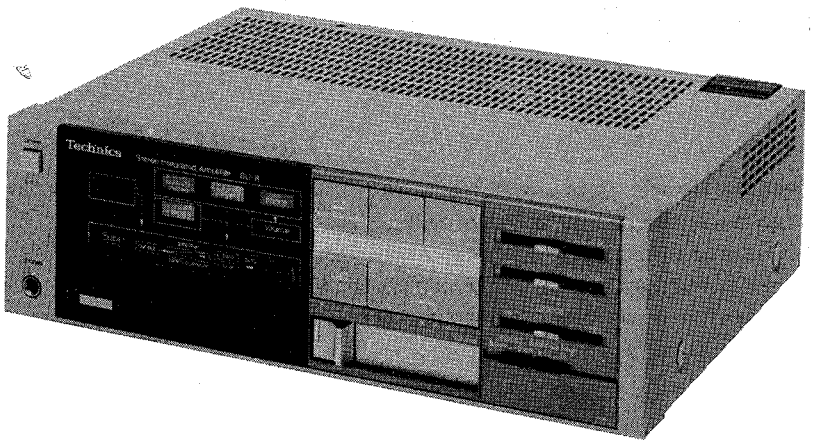
Stereo Integrated Amplifier

SU-8

[EX], [EGA], [EH], [EB]
[EW], [EF], [EK], [Ei]
[XA], [XL]

SU-8 (K)

[EX], [EGA], [EH], [EW]
[EK], [XA]



* The colors of this model include silver and black.
* The black type model is indicated by (K) in the Service Manual.

Areas

* [EX] is available in Scandinavia.
* [EGA] is available in F.R. Germany.
* [EH] is available in Holland.
* [EB] is available in Belgium.
* [EW] is available in Switzerland.
* [EF] is available in France.
* [EK] is available in United Kingdom.
* [Ei] is available in Italy.
* [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
* [XL] is available in Australia.

Specifications (Specifications are subject to change without notice for further improvement.)

(DIN 45 500)

■ AMPLIFIER SECTION

20 Hz~20 kHz continuous power output	
both channels driven	2 × 65W (8Ω)
1 kHz continuous power output	
both channels driven	2 × 75W (8Ω)
Total harmonic distortion	
rated power at 20 Hz~20 kHz	0.03% (8Ω)
rated power at 1 kHz	0.8% (8Ω)
half power at 20 Hz~20 kHz	0.03% (8Ω)
half power at 1 kHz	0.005% (8Ω)
Intermodulation distortion	
rated power at 60 Hz: 7 kHz=4:1, SMPTE, 8Ω	0.03%
Power bandwidth	
both channels driven, −3 dB	10 Hz~30 kHz (8Ω)
Residual hum and noise	0.7 mV
Damping factor	50 (8Ω)
Input sensitivity and impedance	
PHONO	2.5 mV/47kΩ
TUNER, AUX/CD/VIDEO	150 mV/27kΩ
TAPE	150 mV/27kΩ
PHONO maximum input voltage (1 kHz, RMS)	150 mV
S/N	
rated power (8Ω)	
PHONO	78 dB (IHF, A: 81 dB)
TUNER, AUX/CD/VIDEO, TAPE	89 dB (IHF, A: 98 dB)
Frequency response	
PHONO	RIAA standard curve ±0.8 dB (30 Hz~15 kHz)
TUNER, AUX/CD/VIDEO, TAPE	10 Hz~120 kHz (−3 dB)
Tone controls	
BASS	50 Hz, +10 dB~ −10 dB
TREBLE	20 kHz, +10 dB~ −10 dB
Output voltage and impedance	
REC OUT	150 mV
Channel balance, AUX/CD/VIDEO 250 Hz~6,300 Hz	±1 dB
Channel separation, AUX/CD/VIDEO 1 kHz	55 dB
Headphones output level and impedance	580 mV/330Ω
Load impedance	8Ω~16Ω

■ GENERAL

Power consumption	360W
Power supply	
For United Kingdom and Australia	AC 50Hz/60 Hz, 240V
For continental Europe	AC 50 Hz/60 Hz, 220V
For other areas	AC 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensions (W×H×D)	315 × 99 × 245 mm (12-13/32" × 8-29/32" × 9-21/32")
Weight	5.8 kg (12.8 lb.)

Note:
Total harmonic distortion is measured by the digital spectrum analyzer (H.P. 3045 system).

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

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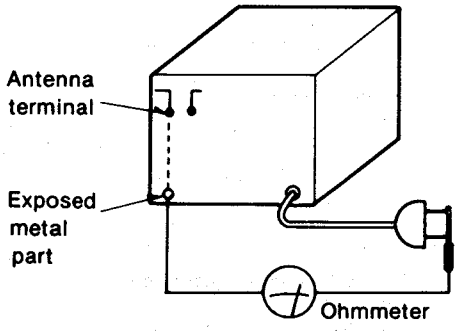
■ SAFETY PRECAUTION

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

• INSULATION RESISTANCE TEST

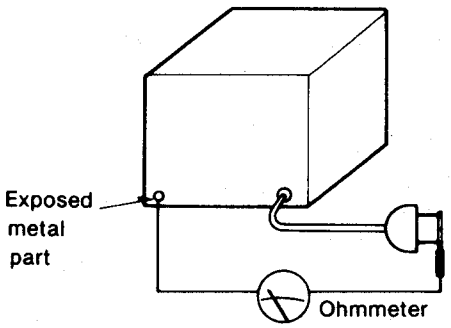
1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between 3MΩ and 5.2MΩ to all exposed parts. (Fig. A) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)

Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.



(Fig. A)

Resistance = 3MΩ—5.2MΩ

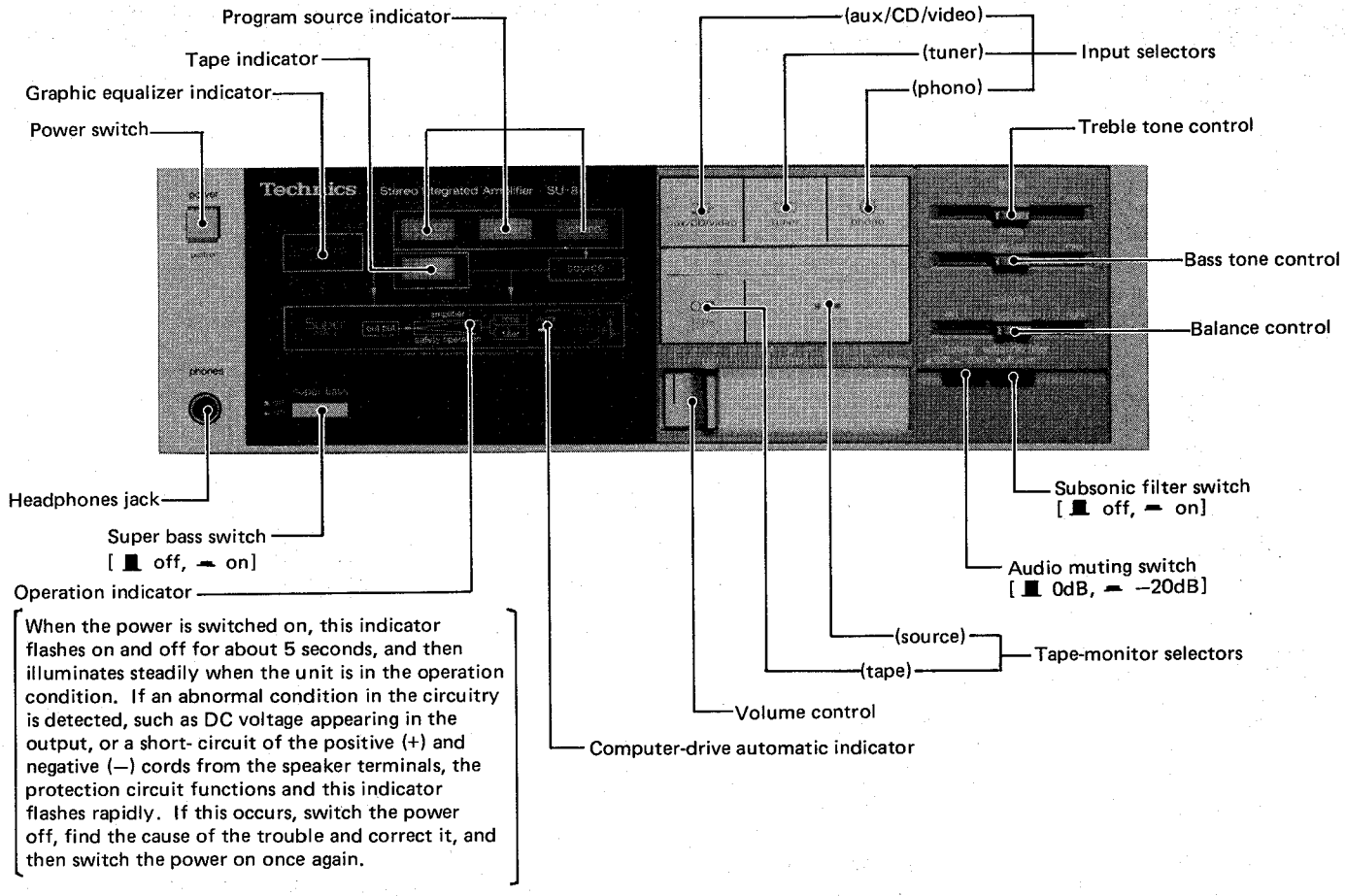


(Fig. B)

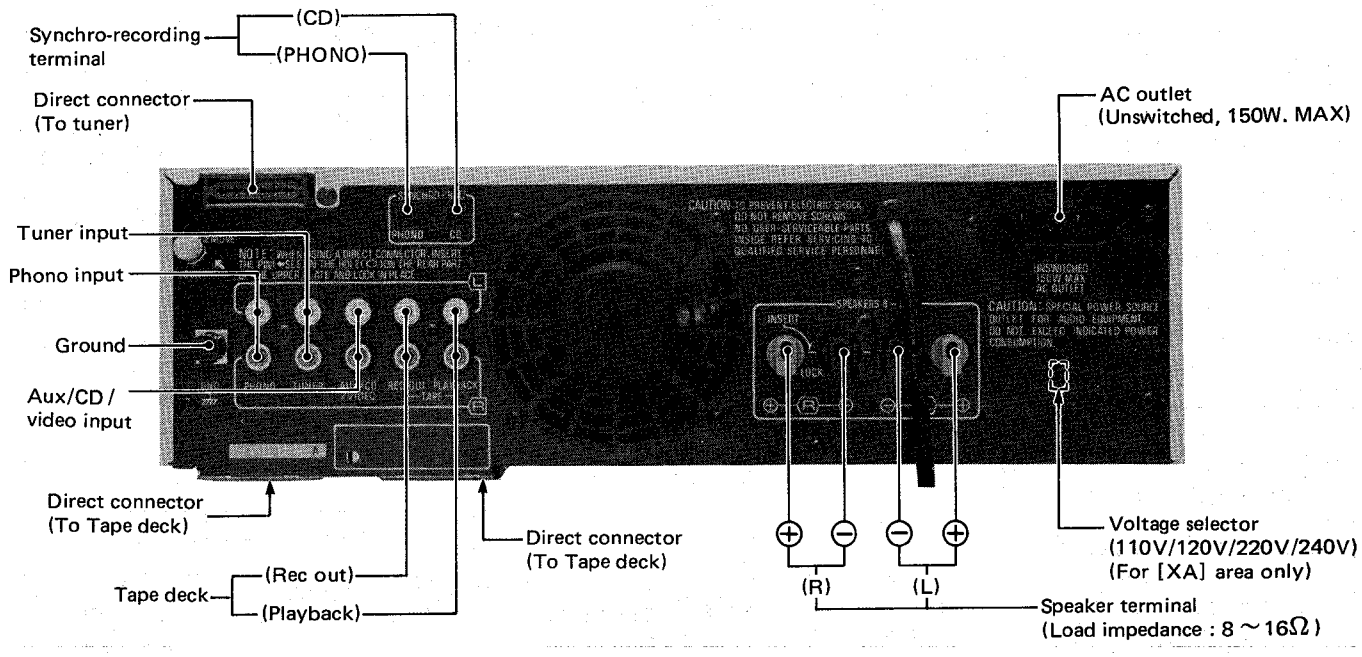
Resistance = Approx ∞

4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

■ LOCATION OF CONTROLS



When the power is switched on, this indicator flashes on and off for about 5 seconds, and then illuminates steadily when the unit is in the operation condition. If an abnormal condition in the circuitry is detected, such as DC voltage appearing in the output, or a short- circuit of the positive (+) and negative (—) cords from the speaker terminals, the protection circuit functions and this indicator flashes rapidly. If this occurs, switch the power off, find the cause of the trouble and correct it, and then switch the power on once again.



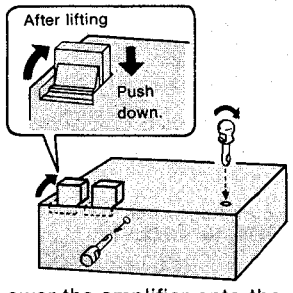
- The power supply for this unit varies depending upon the areas. Also, the parts used for power supply are different. So, refer to the circuit diagram and the replacement parts list.

* 220V (50/60Hz) for continental Europe. (Except for United Kingdom)
* 240V (50/60Hz) for Australia and United Kingdom.
* 110V/120V/220V/240V (50/60Hz) for other areas. (For other areas are provided with voltage selector)
* Phono input capacitance is about 150pF.

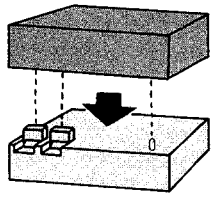
■ STEREO SYSTEM COMPONENTS AND THEIR CONNECTIONS

When stacking the units vertically, connect by using direct connectors.

① Lift the direct connectors on the tape deck. Push them straight down to lock them into place.
② Remove the stabilizing pin from the back panel. (Turn counterclockwise 90° and pull.)
③ Insert the pin into the top panel. (Push in and turn clockwise 90°.)



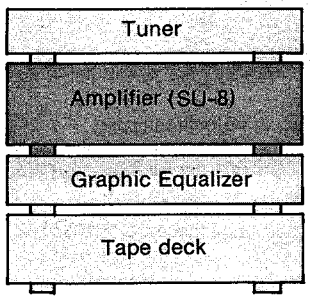
④ Lower the amplifier onto the tape deck. Line up the direct connectors and stabilizing pin properly.



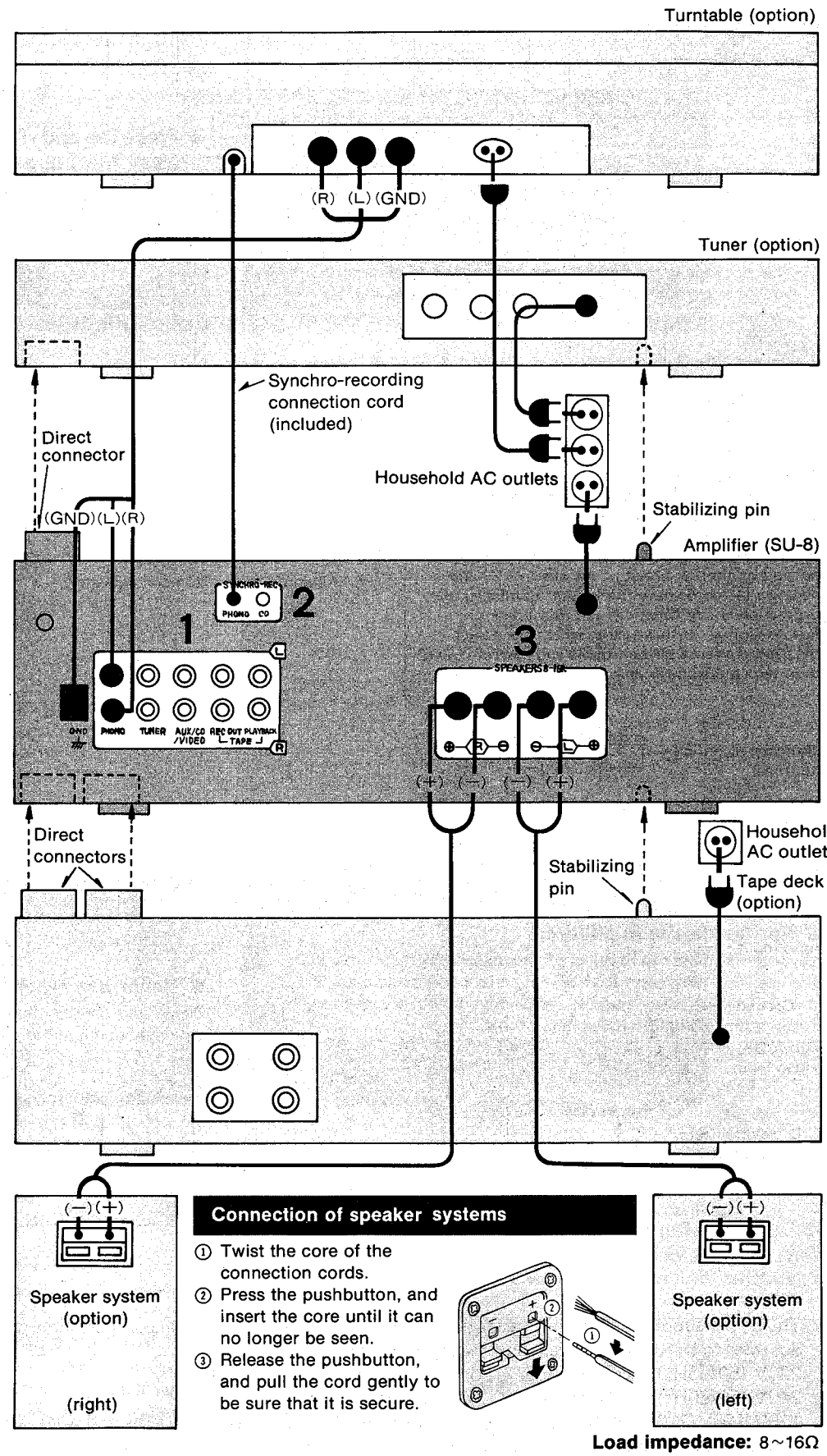
⑤ Connect the tuner to the amplifier the same way as in ① ~ ④.
⑥ Connect the turntable and speakers with their respective cords.

Notes:

1. When using the direct connectors, do not use pin cords.
2. When using the graphic equalizer, place it between the amplifier and the tape deck.



3. Position the units in a straight column to avoid twisting and breaking the direct connectors.
4. If this unit is installed in a rack, first make the direct connector connections.



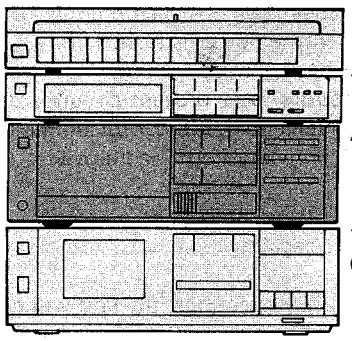
Connection of speaker systems

① Twist the core of the connection cords.
② Press the pushbutton, and insert the core until it can no longer be seen.
③ Release the pushbutton, and pull the cord gently to be sure that it is secure.

Load impedance: 8~16Ω

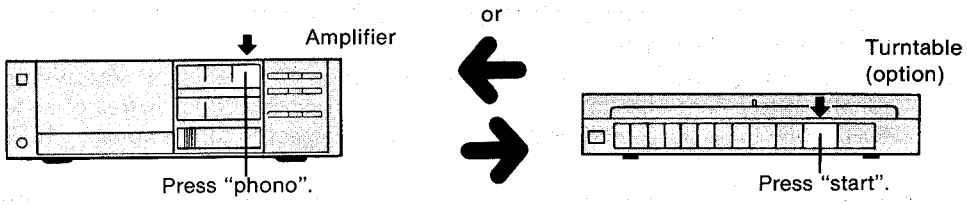
■ DIRECT OPERATION

"Direct operation" means that, once each component has been prepared for operation, any operation can be conveniently selected and started by one-touch operation.
This function is possible only by the combination of Technics components shown in the figure at the right, and which have been connected by direct connectors.
Operation at the amplifier, or at the individual components, is possible.



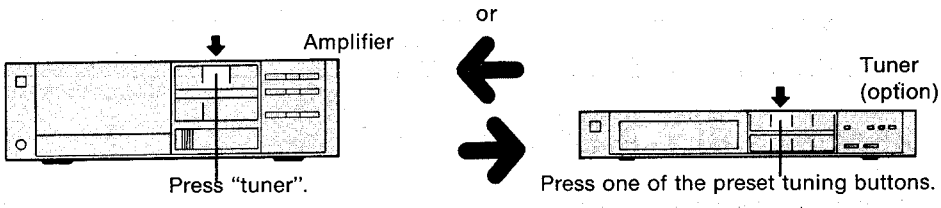
- **To listen to discs...**

Press the "phono" button on the amplifier or the "start" button on the turntable.



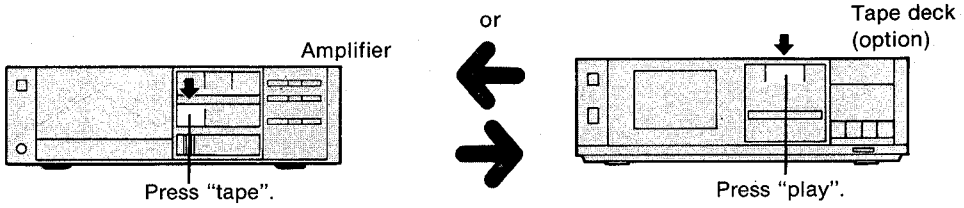
- **To listen to radio broadcasts...**

Press the "tuner" button on the amplifier or one of the preset tuning buttons on the tuner.



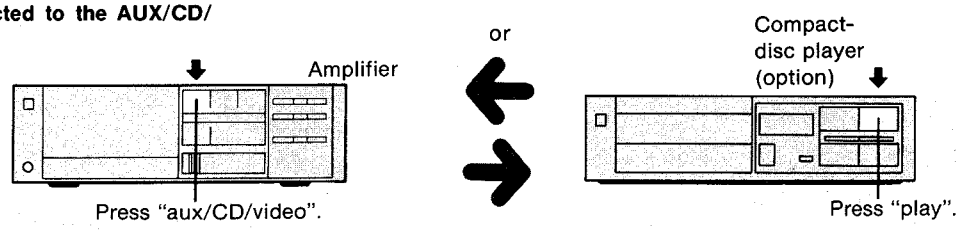
- **To listen to a tape...**

Press the "tape" button on the amplifier or the "play" button on the tape deck.



- **To listen to a compact-disc player...**
  (To listen to the component connected to the AUX/CD/ VIDEO terminal on the rear panel)

Press the "aux/CD/video" button on the amplifier or the "play" button on the compact-disc player.



Notes:
1. Do not switch the tuner on while playing a disc or tape, or while tape recording, because to do so will cause the "tuner" input selector to be automatically activated.
2. If, while listening to a disc or radio broadcast, the tape deck is switched off and the tape indicator is illuminated, press the tape-monitor selector marked "source".
3. Even though another input selector is pressed whle listening to a turntable or a compact-disc player, the turntable or compact-disc player will continue to operate; be sure to stop it.

■ PROTECTION CIRCUITRY

The protection circuitry may have operated if either of the following conditions is noticed:

- No sound is heard when the power is turned on.
- Sound stops during a performance.

The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted", or if speaker systems with an impedance less than the indicated rated impedance of this unit are used. If this occurs, follow the procedure outlined below:

1. Turn off the power.
2. Determine the cause of the problem and correct it.
3. Turn on the power once again.

Note:

When the protection circuitry functions, the unit will not operate unless the power is first turned off and then on again.

■ BEFORE REPAIR AND ADJUSTMENT

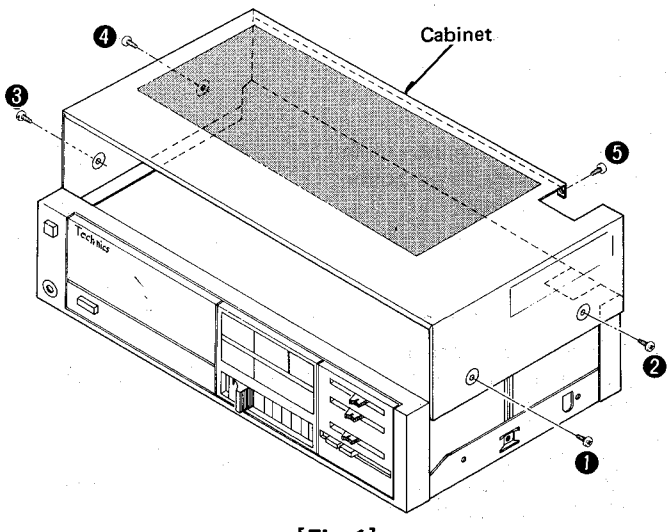
1. Turn off the power supply and short-circuit of power supply capacitors (C401, C402, 56V 10000μF) at resistance (about 10Ω, 5W) in order to discharge the charged voltage. Do not short between C401, C402 by screwdriver. It may damage the component.
2. Before turning on the power supply after completion of repair, slowly apply the primary voltage by using a power supply voltage controller to make sure that the consumed current is free of abnormality. The consumed current at 60Hz/50Hz in no signal mode is shown below with respect to supply voltage 110V/120V/220V/240V.

Power supply voltage		AC110V	AC120V	AC220V	AC240V
Consumed current	50 Hz	462 ~ 924mA	410 ~ 820mA	242 ~ 484mA	222 ~ 444mA
	60 Hz	446 ~ 892mA	403 ~ 806mA	229 ~ 458mA	198 ~ 396mA

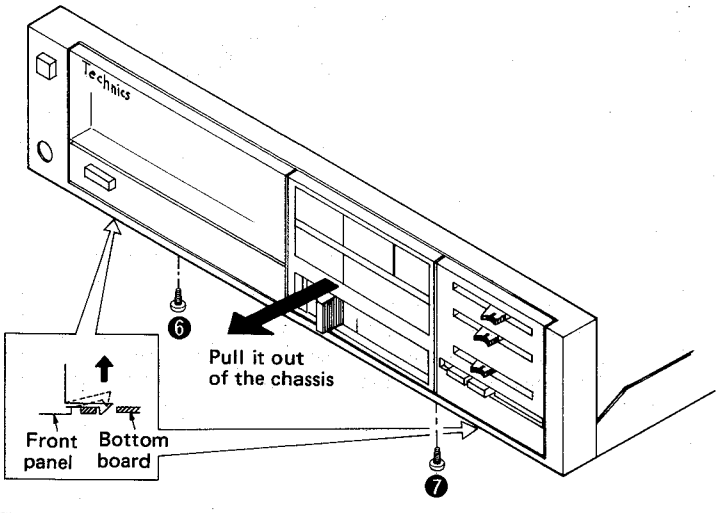
■ DISASSEMBLY INSTRUCTIONS

- **How to remove the cabinet [Fig. 1]**

1. Remove the 5 setscrews (Fig. 1: ❶ ~ ❺) on the side and rear of the cabinet.



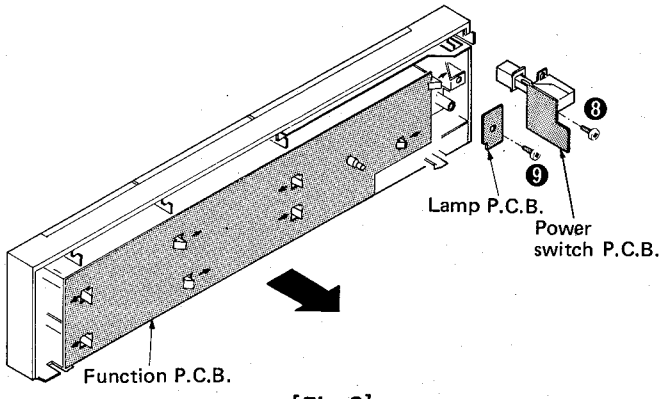
[Fig. 1]



[Fig. 2]

- **How to remove the front panel [Fig. 2 ~ 4]**

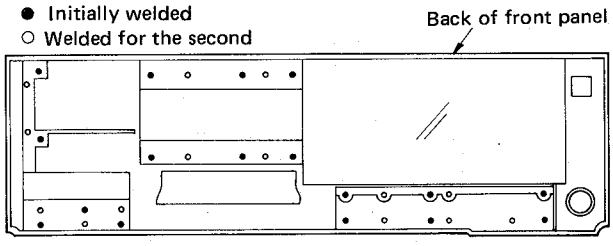
1. Remove the cabinet.
2. Remove the 2 setscrews (Fig. 2: ❻, ❼) and release the 2 claws under the front panel.
3. Remove the setscrew (Fig. 3: ❽) of power switch P.C.B. Then remove the power switch.
4. Remove the setscrew (Fig. 3: ❾) of lamp P.C.B.
5. Replace the 7 claws which fasten the function P.C.B. to the front panel in the directions of the arrows as in Fig. 3. Then remove the function P.C.B. from the front panel.
6. Remove the 2 setscrews (Fig. 4: ❿, ⓫) of input selector switch P.C.B., and release the 4 claws in the directions of the arrows, then remove the switch P.C.B. from the front panel.



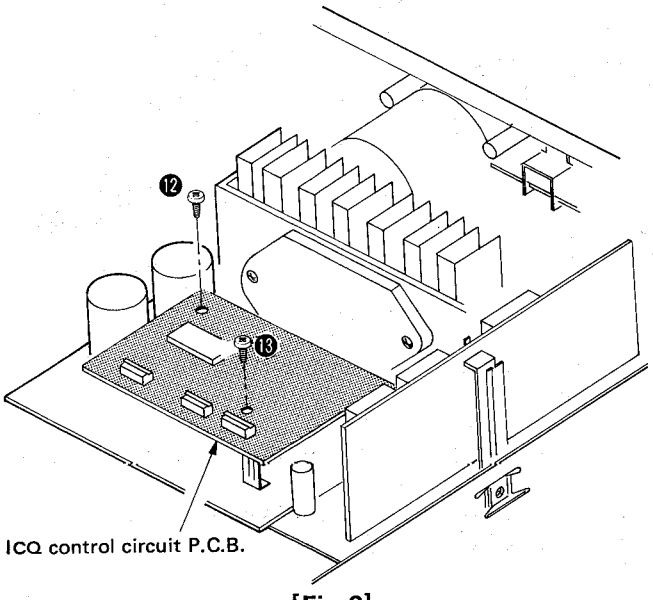
[Fig. 3]

• How to remove the ornamental board and grille [Fig. 5 ~ 7]

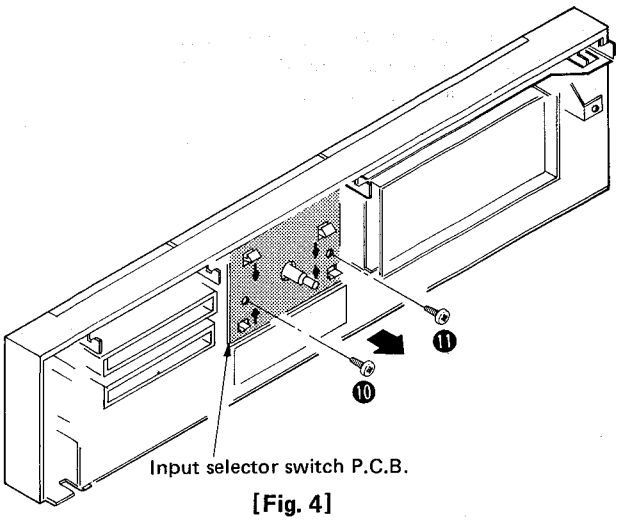
1. Remove the front panel. (Refer to "How to remove the front panel.")
2. Release the 2 claws which fasten the input selector button, and remove it from the front panel as in Fig. 5.
3. Release the 2 claws (front panel top) which fasten the display board, and remove it from the front panel.
   Note: When fitting the display board, fit it in the projection Ⓐ and then push the board in place.
4. The ornamental board and grille are welded at 17 portions shown by black spots in Fig. 6. So, cut them off by screwdriver or nippers. Then the transparent board, grille, and main volume knob can be removed as in Fig. 7.
5. When fitting the parts, set the ornamental board, grille, transparent board, and main volume knob in their positions, and then weld them at the portions shown by white circles in Fig. 6.



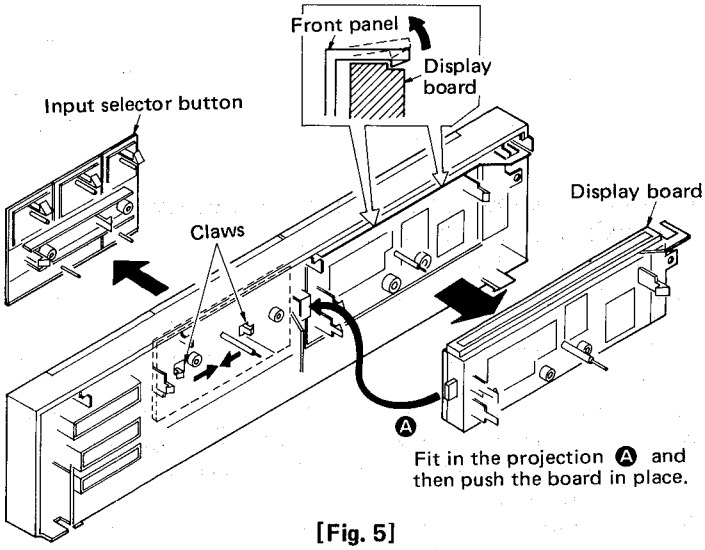
[Fig. 6]



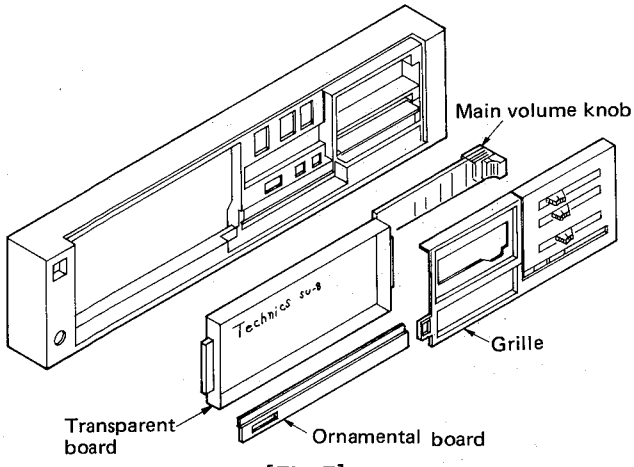
[Fig. 8]



[Fig. 4]



[Fig. 5]

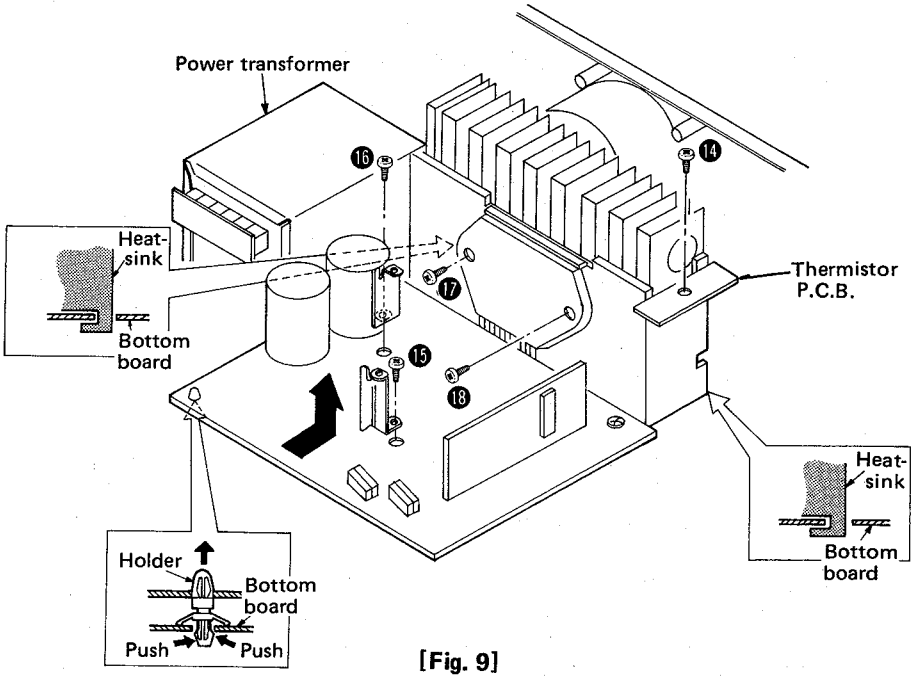


[Fig. 7]

• How to remove power IC [Fig. 8, 9]

1. Remove the cabinet.
2. Remove the 2 setscrews (Fig. 8: ⑫, ⑬) of ICQ control P.C.B.
3. Remove the setscrew (Fig. 9: ⑭) of thermistor P.C.B.
4. Remove the 2 setscrews (Fig. 9: ⑮, ⑯) of power amplifier P.C.B. and the holder fastened to the bottom of P.C.B., then slightly push the holder in the direction of the arrow and release the Heat-sink's claw to lift it up.
5. Remove solder from power IC and remove the 2 setscrews (Fig. 9: ⑰, ⑱) of power IC. Then the power IC can be removed.

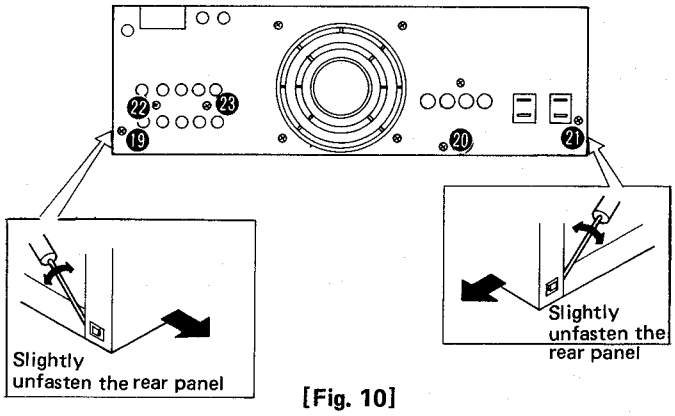
6. When fitting the power IC, apply heat diffusing agent (silicon powder, etc.) to the rear side of power IC.



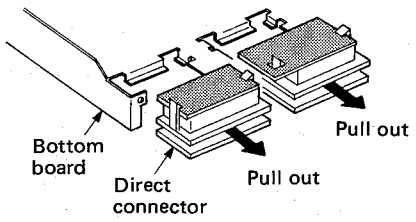
[Fig. 9]

• How to remove input terminal P.C.B. and equalizer P.C.B. [Fig. 10 ~ 12]

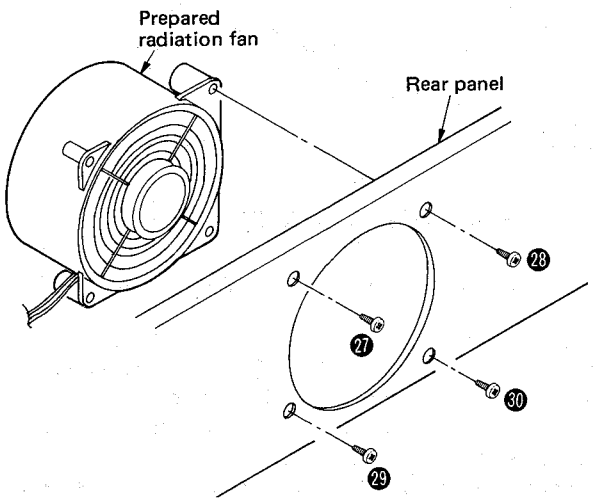
1. Remove the cabinet.
2. Remove the 5 setscrews (Fig. 10: ⑲ ~ ㉓) of rear panel.
3. Slightly unfasten the side chassis of rear panel and remove the rear panel toward you.
4. Remove the 2 direct connectors of bottom board. (Fig. 11)
5. Remove the 2 setscrews (Fig. 12: ㉔ , ㉕) of input terminal P.C.B. and equalizer P.C.B., then lift them up as shown by the arrows.
6. To remove the synchro recording P.C.B., remove the setscrew (Fig. 12: ㉖).



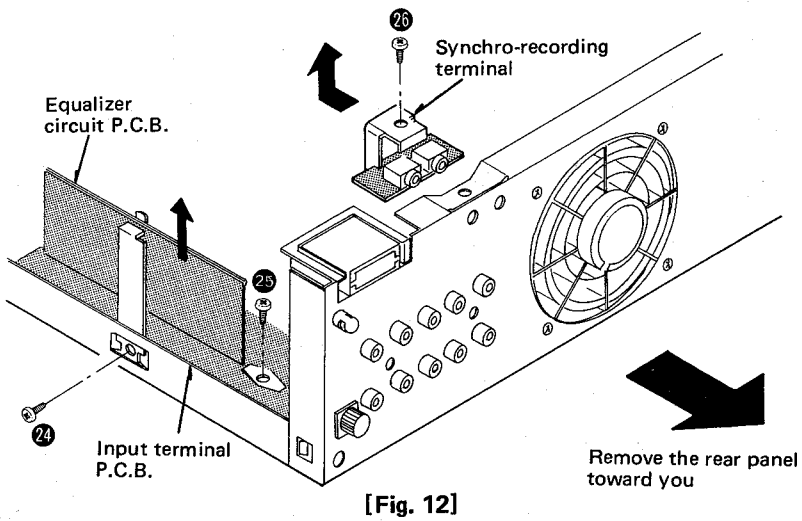
[Fig. 10]



[Fig. 11]



[Fig. 13]

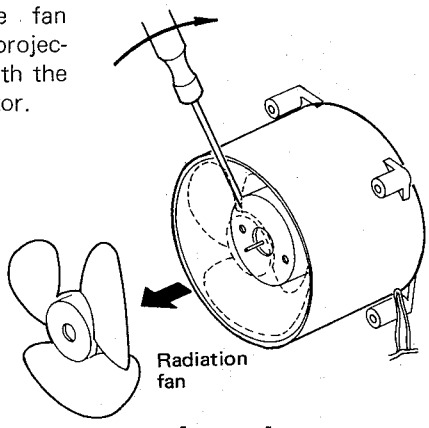


[Fig. 12]

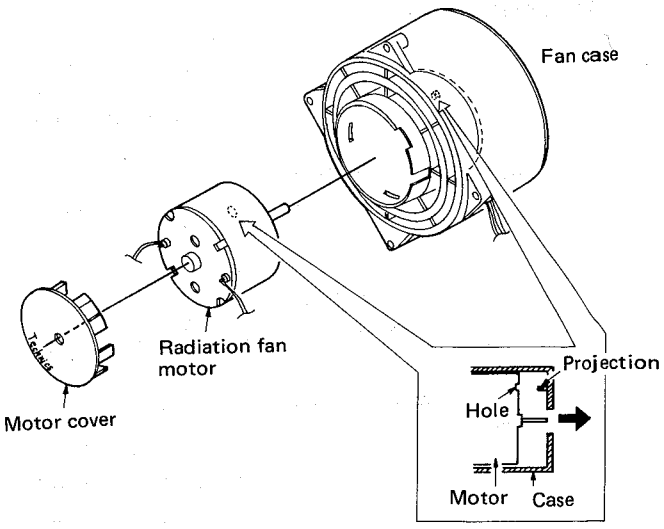
• How to remove radiation fan motor [Fig. 13, 14, 15]

1. Remove the cabinet.
2. Remove the rear panel. (See Fig. 10.)
3. Remove the 4 setscrews (Fig. 3: ㉗ ~ ㉚) of prepared radiation fan.
4. Remove the fan by use of a screwdriver as shown in Fig. 14.
5. Remove the motor cover as in Fig. 15. Then the fan motor can be removed.

6. When fitting the fan motor, match the projection of fan case with the hole in the fan motor.



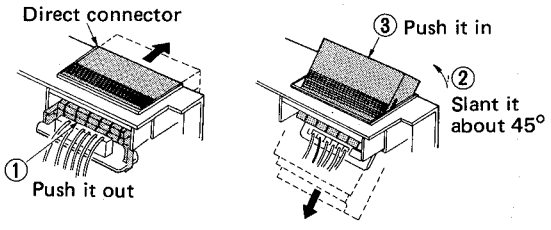
[Fig. 14]



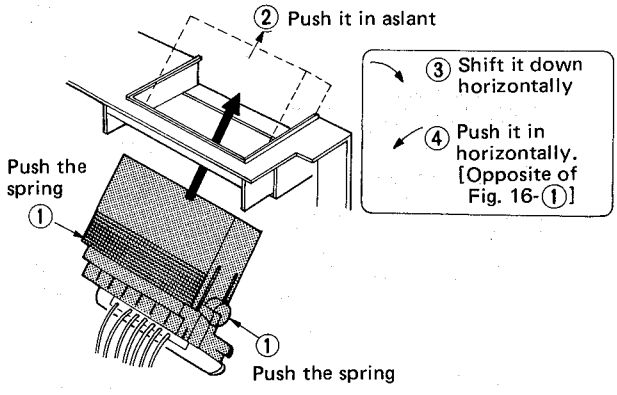
[Fig. 15]

- **How to remove direct connector [Fig. 16, 17]**

1. Remove the cabinet.
2. Remove the direct connector as shown in Fig. 16.
3. When fitting the connector, follow the procedure shown in Fig. 17.



[Fig. 16]


② Push it in aslant
③ Shift it down horizontally
④ Push it in horizontally. [Opposite of Fig. 16-①]
Push the spring
①
① Push the spring

[Fig. 17]

■ MEASUREMENTS AND ADJUSTMENTS

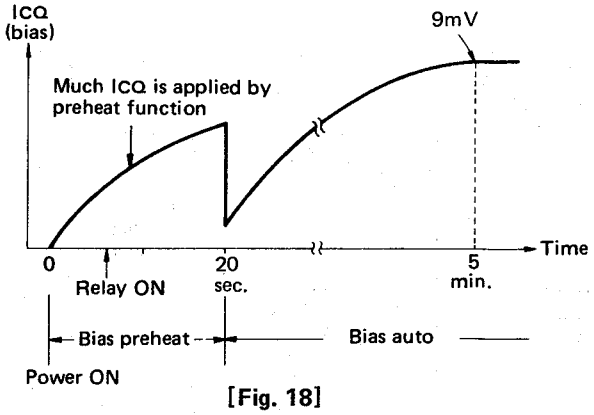
1. Clock Adjustment (after replacing the microcomputer)

(1) Connect the oscilloscope to TP1 (Refer to Fig. 19)
(2) Adjust VR601 so that period of waveform is 2.5μsec.

2. Idling (ICQ) Adjustment (after reparing the main amp.)

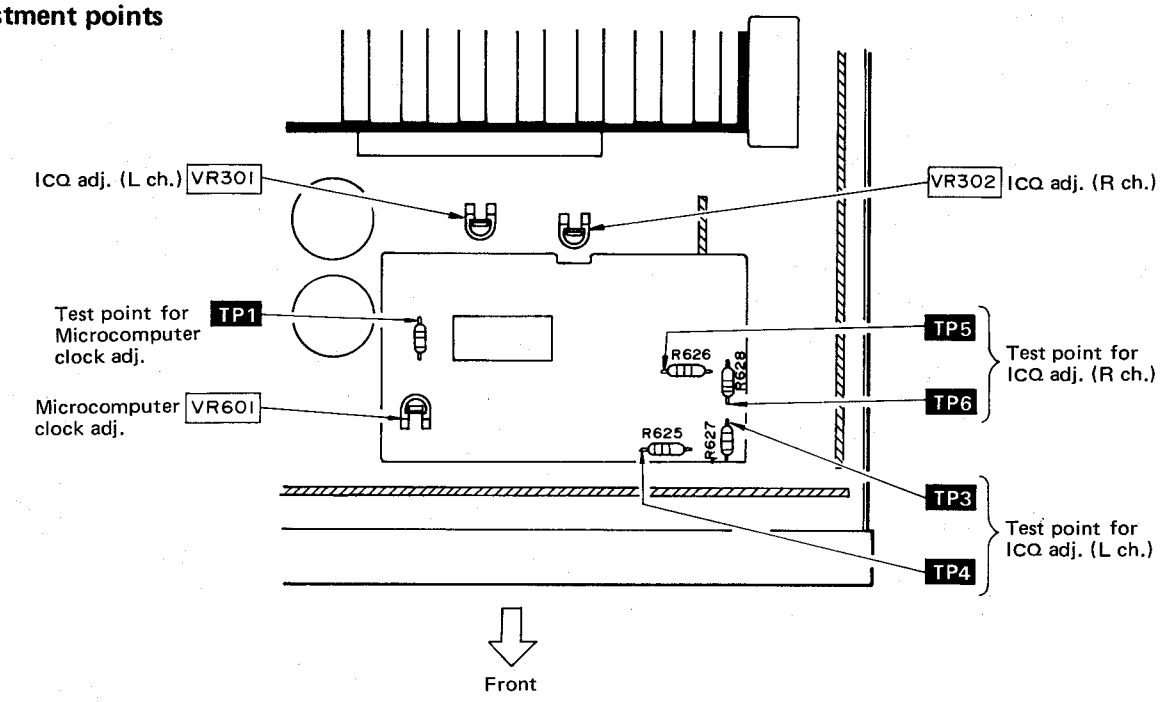
(1) After the repair, set the sound volume to minimum before turning on the power switch, and connect nothing to the speaker terminals.
(2) Completely turn ICQ control (VR301, 302) clockwise.
(3) Increase the voltage applied to the amplifier gradually from 0V by means of a power supply voltage controller, and make sure of the value in the Figure on page 6 before starting the adjustment.
(4) Connect the DC electronic voltmeter to TP3 (+) and TP4 (–) [left channel] or TP5 (+) and TP6 (–) [right channel].
(5) When 5 minutes have lapsed after computer drive monitor "auto" lights up, adjust VR301 [left channel] or VR302 [right channel] to 9mV.

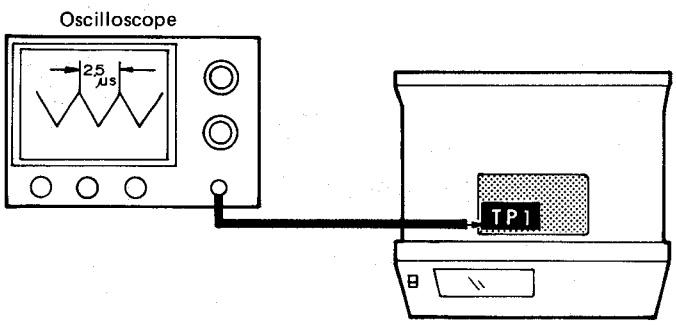
* In this set, ICQ is controlled by microcomputer, and ICQ a little more than the normal level is applied by "PRE-HEAT" for about 20 sec. after power ON. After that, the output level and transistor temperature are detected by "AUTO", thereby automatically controlling ICQ.



[Fig. 18]

• Adjustment points

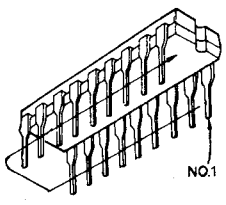




[Fig. 19]

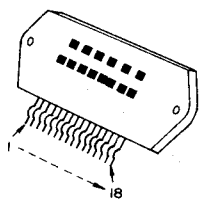
Microcomputer clock adj.

• Terminal guide of transistors, diodes and IC's

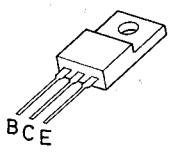


AN7062	18PIN
SVINJM2043DD	8PIN
SVITC9151P	24PIN
MN1421STA	28PIN
SVITD62501P	16PIN

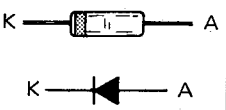
SVISTK2048-2M



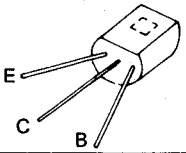
2SD1265



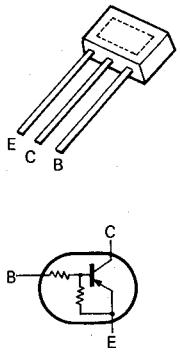
MA150



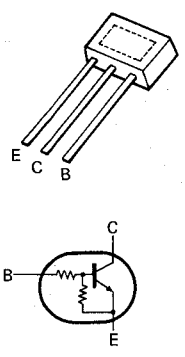
2SA1123, 2SC2631
2SD788, 2SC1845
2SC3112, 2SA1015
2SA992, 2SC1815



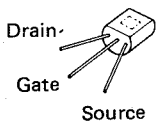
UN4111



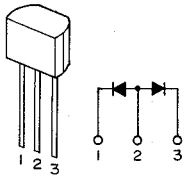
UN4211



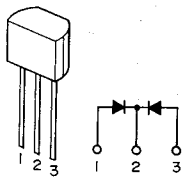
2SK301



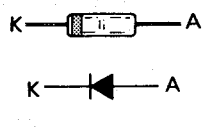
SVDMC911



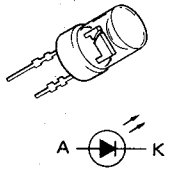
SVDMC921



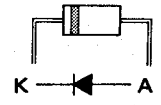
OA90



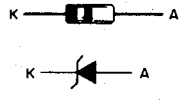
SVGSLV31DC3
SVGSLV31YC3M



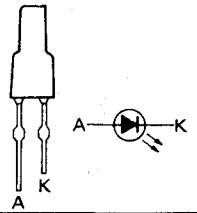
SVDS3V20
SVDSR1K2



MA1160M, MA1150M
MA1062M, MA1047M



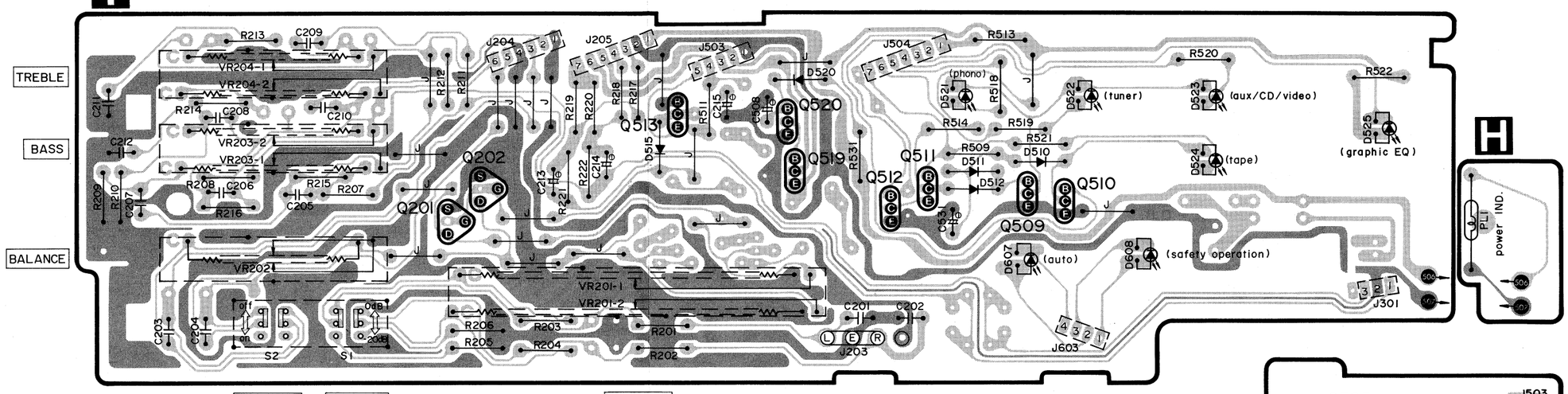
LN346GP, LN446YP



■ PRINTED CIRCUIT BOARDS

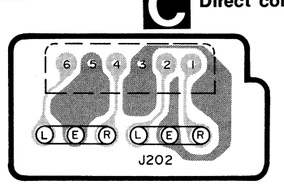
Ground (Earth) lines

I Function circuit P.C.B.



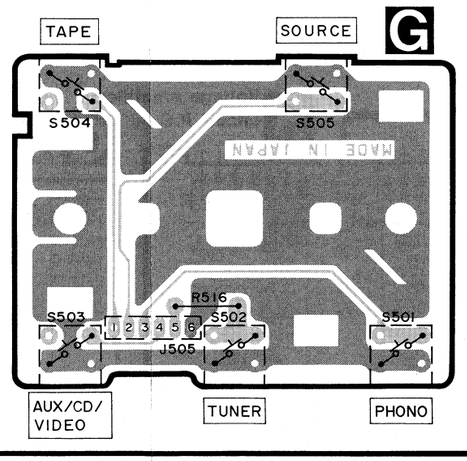
H

C Direct connector ❷

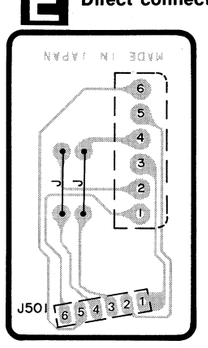


Input selector switches P.C.B.

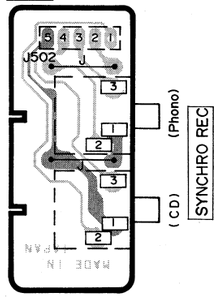
G



E Direct connector ❸

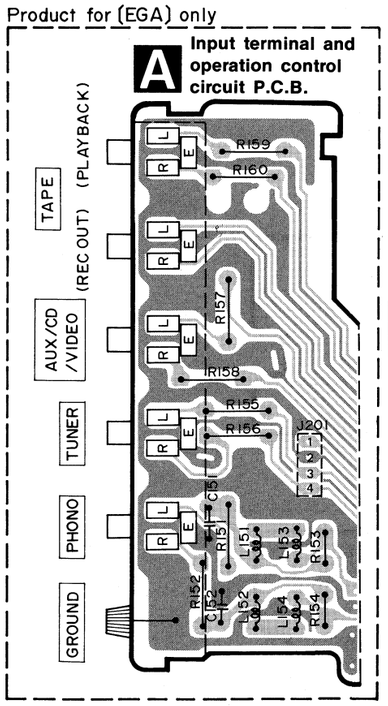


F Synchro-recording terminal P.C.B.

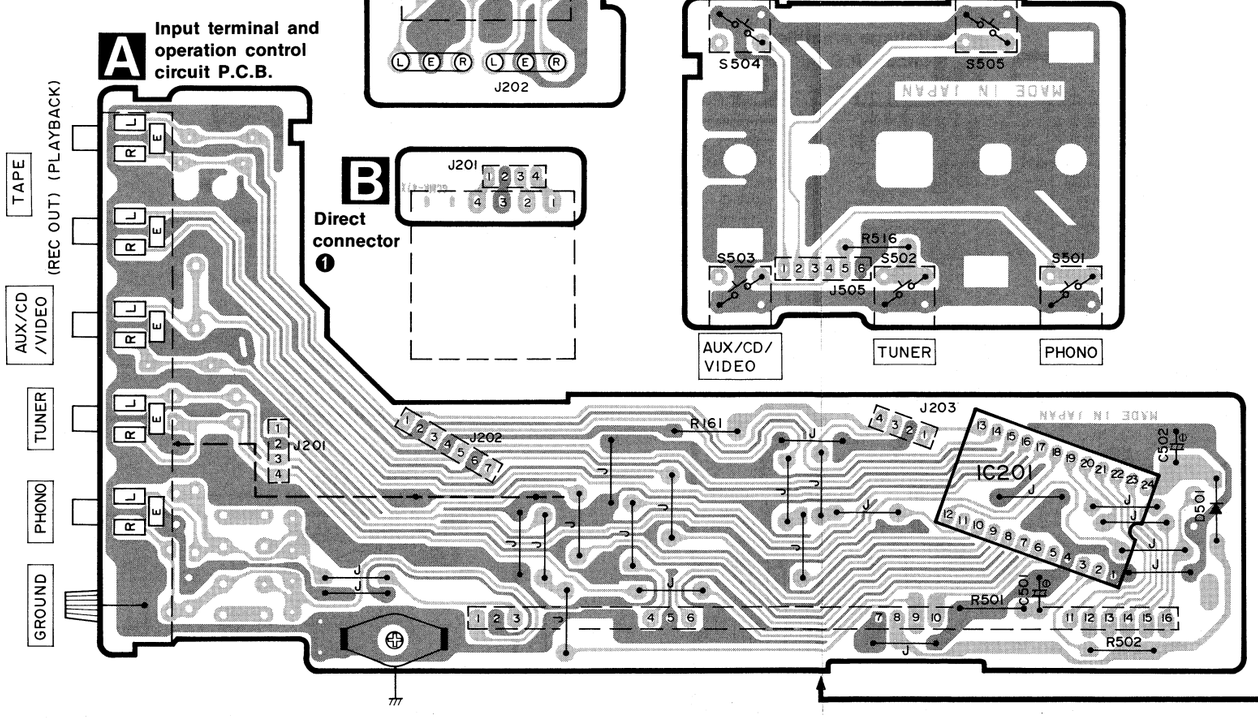


Product for (EGA) only

A Input terminal and operation control circuit P.C.B.

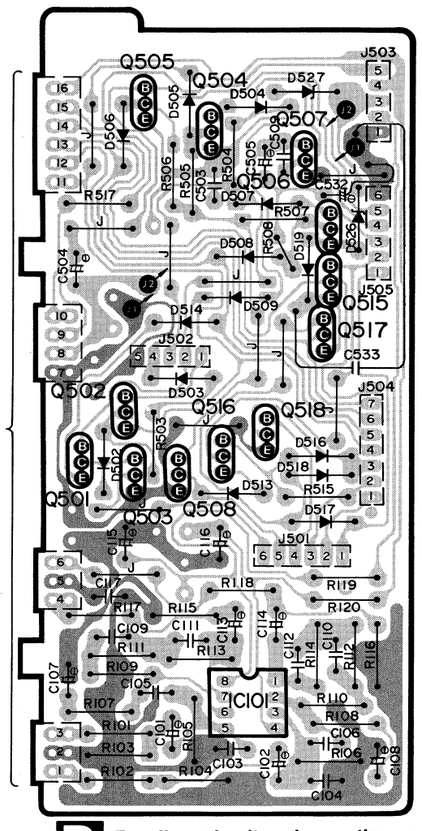


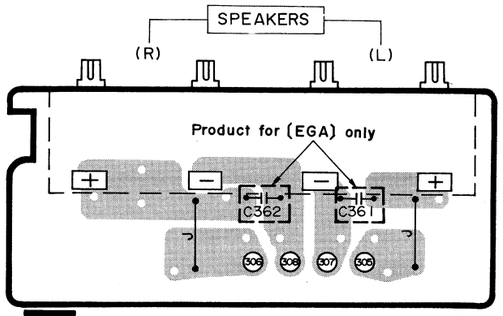
A Input terminal and operation control circuit P.C.B.



B Direct connector ❶

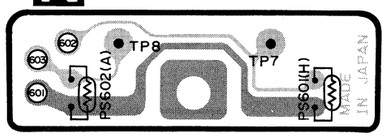
D Equalizer circuit and operation control circuit P.C.B.





N Speaker terminal P.C.B.

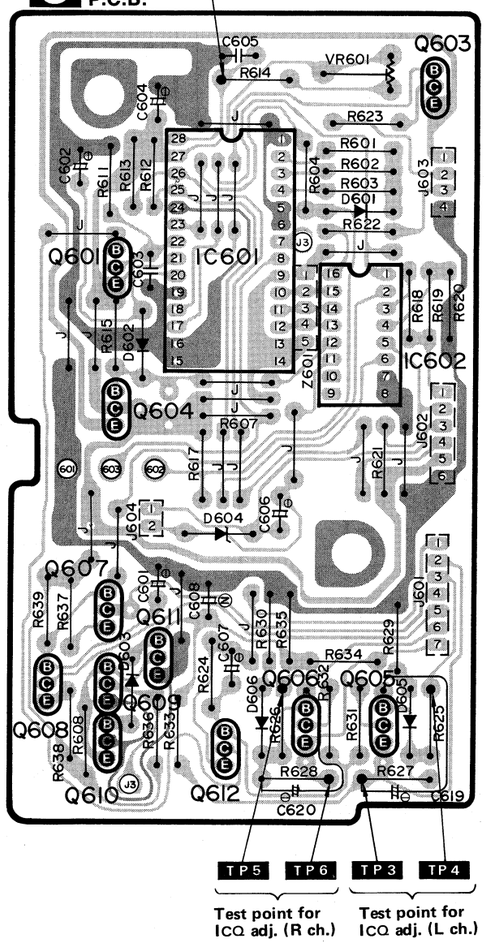
K Thermistor P.C.B.



J ICQ control circuit P.C.B.

Test point for microcomputer clock adj.

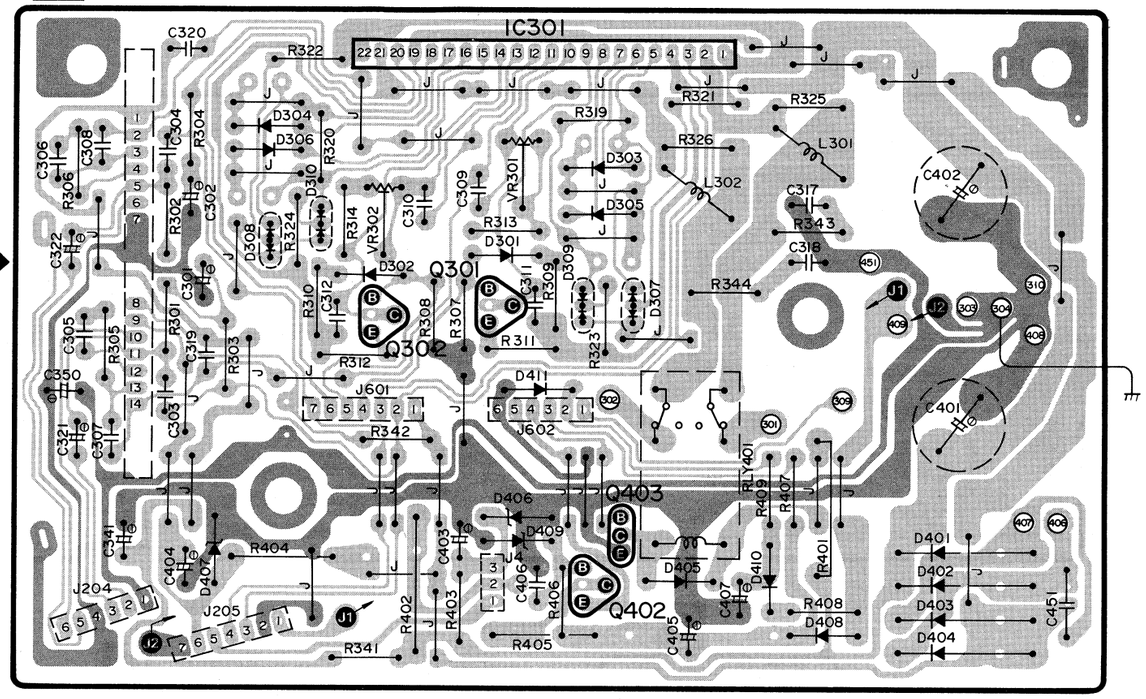
TP1



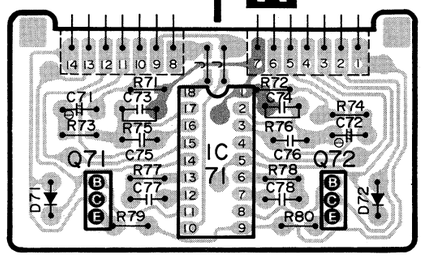
Test point for ICQ adj. (R ch.)

Test point for ICQ adj. (L ch.)

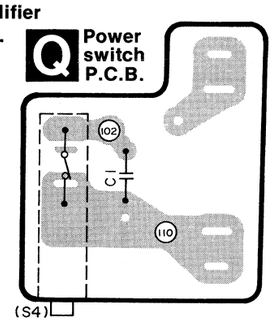
L Main amplifier and power supply circuit P.C.B.



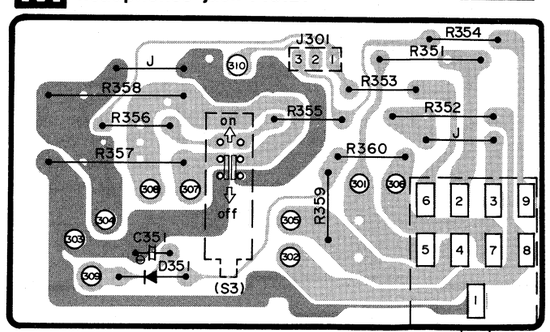
R Voltage amplifier circuit P.C.B.

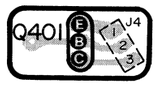


Q Power switch P.C.B.

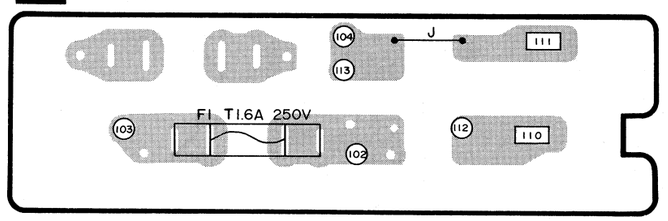


M Super bass switch and headphones jack P.C.B.

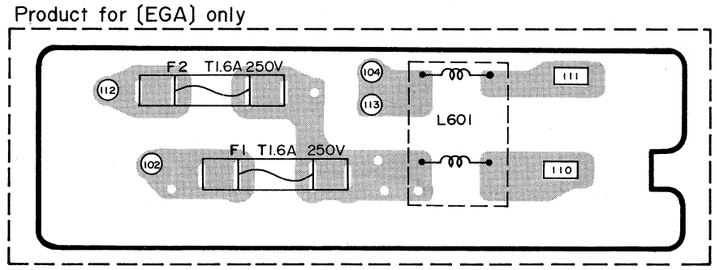




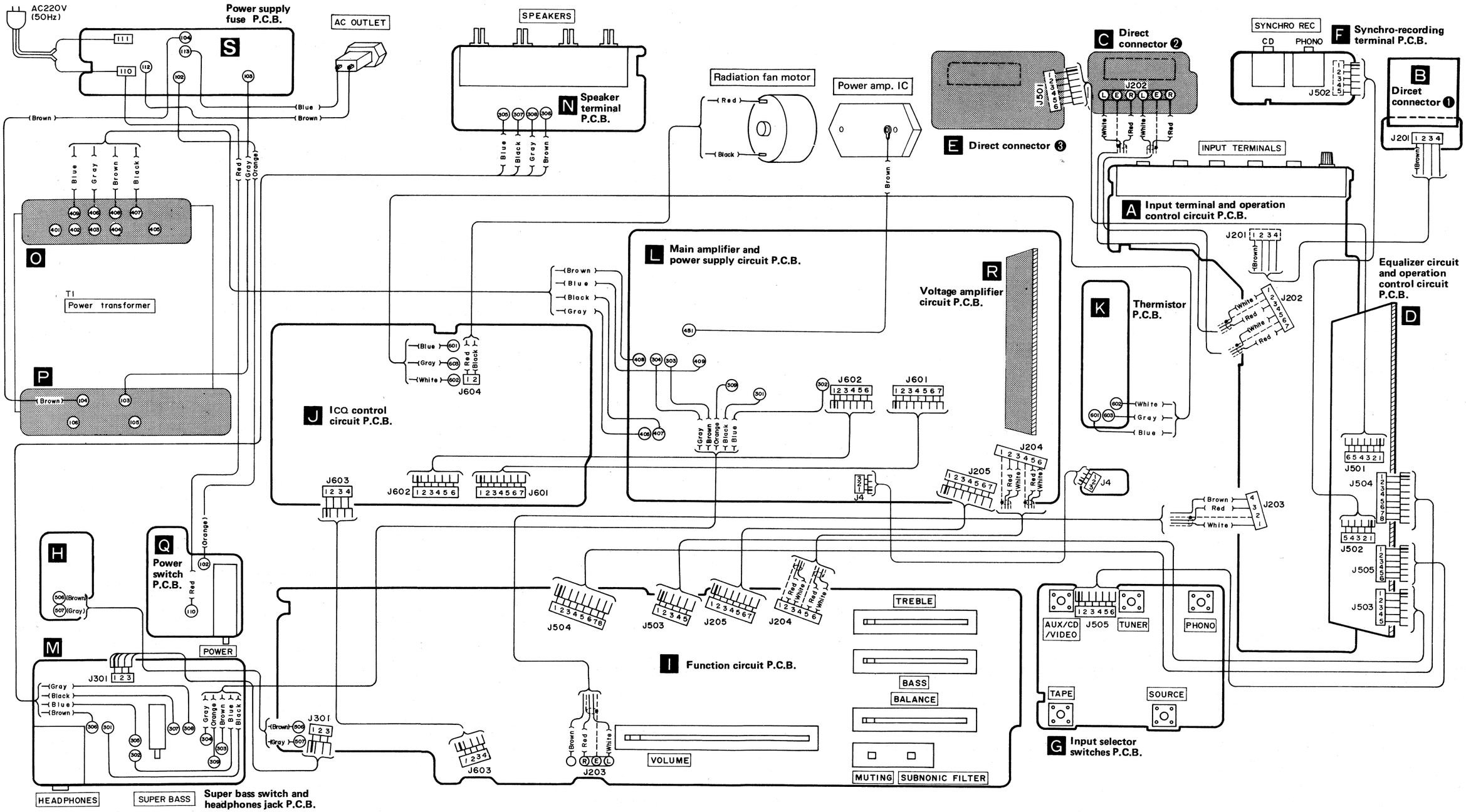
S Power supply fuse P.C.B.



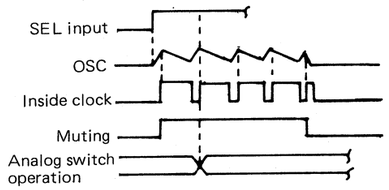
Product for (EGA) only



■ CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM (Top view)



■ FUNCTION OF TERMINAL (FUNCTION SELECTOR IC201)

Pin No.	Mark	Description of terminal
1	GND	Ground terminal.
2	INH	Inhibit input terminal Normal operation at "H" level, and inhibit mode at "L" level.
3	OSC	C • R connection terminal for oscillator Muting time and analog switch timing are set according to the frequency of this oscillator. Usually, oscillator is stopped but starts oscillating with SEL input, and stops after delivery of 5 clock output.
4	ALL-OFF	OFF assigning input terminal for all analog switches. When this terminal is at "H" level, all analog switches turn OFF.
5	MUTE	Muting signal output terminal. This terminal is at "H" level for a specific period of time when select input (SEL-1 ~ SEL-5) terminals receive "H" level, and analog switches are operated within that period. Muting output time can be freely designed according to OSC frequency. 
6 18	SIG-A1 SIG-B1	Signal input terminal 1. (Tuner input) With SEL-1 selected, analog switch 1 turns ON, and then it conducts between this terminal and COM-1 terminal.
7 17	SIG-A2 SIG-B2	Signal input terminal 2. (Phono input) With SEL-2 selected, analog switch 2 turns ON, and then it conducts between this terminal and COM-1 terminal.
8 16	SIG-A3 SIG-B3	Signal input terminal 3. (Aux/CD/Video input) With SEL-3 selected, analog switch 3 turns ON, and then it conducts between this terminal and COM-1 terminal.
9 15	COM-A1 COM-B1	Analog switch common terminal 1. (Rec out) Analog switch common to SIG_1 ~ SIG_3.
10 14	SIG-A4 SIG-B4	Signal input terminal 4. (Playback) With SEL-5 selected, analog switch 5 turns ON, and then it conducts between this terminal and COM-2 terminal. With SEL-4 selected, analog switch 4 turns ON, and then it conducts between this terminal and then analog switch 5 turns off.
11 13	COM-A2 COM-B2	Analog switch common terminal 2. Common terminal of analog switches 4 and 5.
12	Vss	Apply –15V.
19 20 21 22 23	SEL-5 SEL-4 SEL-3 SEL-2 SEL-1	Select input terminal of each analog switch. When SEL-1 ~ SEL-5 terminals are at "H" level, each analog switch selected turns ON. SEL-1, SEL-2, SEL-3, and SEL-4, SEL-5 are of mutual reset types, and are OFF except in case of selected input. This terminal is an I/O terminal, also used for driver output for display. (LED driver is turned ON by inside latch circuit with "H" level input, and it is fixed at "H" level even when shifted to "L" level.)
24	VDD	Apply 15V.

■ FUNCTION OF TERMINAL (ICQ CONTROLLER IC601)

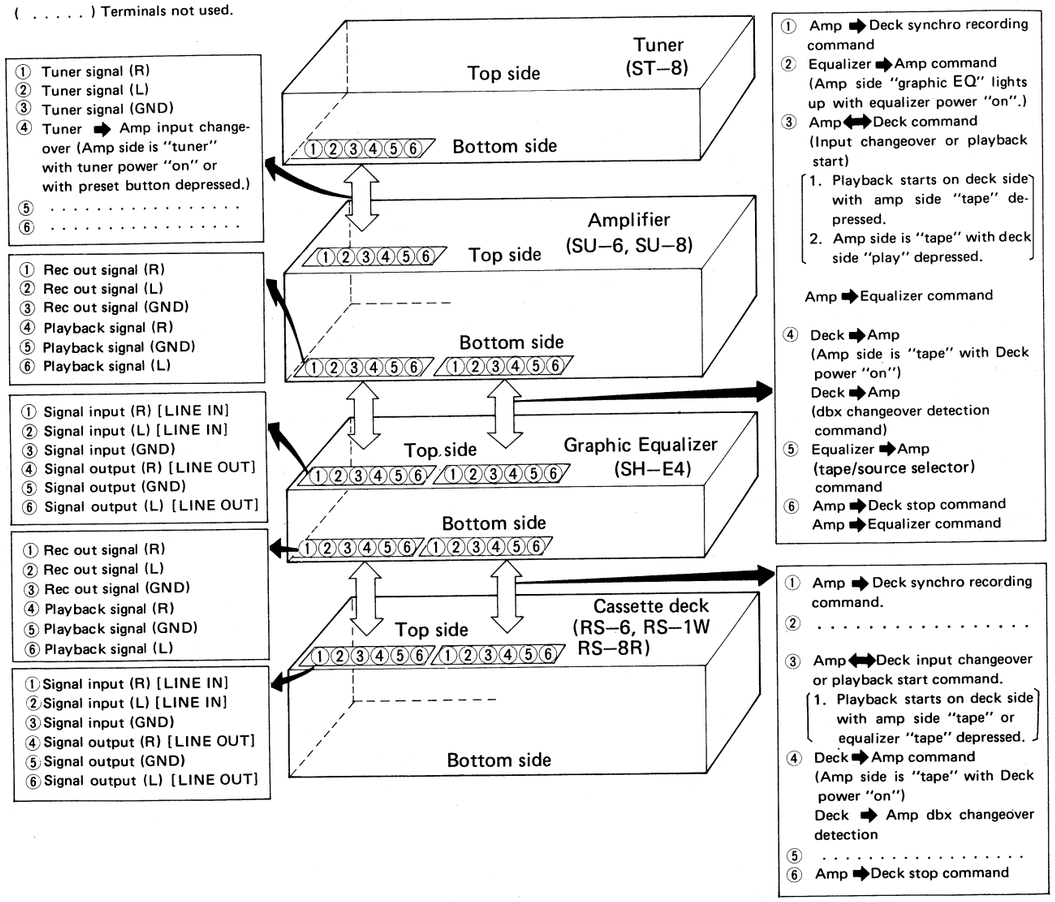
Pin No.	Mark	Name of block	Description of terminal
1	Vss	Power	Grounded (0V)
2	CO_9	Output port C	It delivers ICQ control signal through input port A (thermal sensor) and input port B (signal sensor). [Output "L"]
3	CO_8		
4	CO_7		
5	CO_6		Not used in this unit.
6	CO_5		
7	AI_3	Input port A	"H" input with DC detector circuit of power amplifier operated.
8	AI_2		When 130°C (266°F) sensor of power amplifier operates, the input level becomes "H".
9	AI_1		Not used in this unit.
10	AI_0		When 60°C (122°F) sensor of power amplifier operates, the input level becomes "L".

Pin No.	Mark	Name of block	Description of terminal
11	BI_3	Input port B	Input level changes to "L" as effective output signal sensor of power amplifier operates.
12	BI_2		Input level changes to "L" as effective output signal sensor of power amplifier operates.
13	BI_1		Not used in this unit.
14	BI_0		Not used in this unit.
15	EO_0	Output port E	Not used in this unit.
16	EO_1		Not used in this unit.
17	EO_2		Indicator "auto" lights up at "L" output.
18	EO_3		Indicator "safety" lights up at "H" output.
19	TST	Test input terminal	Terminal for testing LSI (Grounded).
20	RST	Reset input terminal	All outputs are cleared or rest with input at "L". (It is connected to power supply circuit)
21	SNS_0	Sensor input terminal	Not used in this unit.
22	SNS_1		Input level changes to "H" as power amplifier output short-circuit operates.
23	DO_0	Output port D	Output terminal for operating the preheat circuit. ("L" output)
24	DO_1		Not used in this unit.
25	DO_2		Output terminal for operating the radiation fan motor. ("H" output)
26	DO_3		Output relay turns ON with output at "H".
27	VDD	Power supply input terminal	Apply 5V.
28	OSC	OSC input terminal	Clock signal (about 400kHz) can be obtained by internal oscillation circuit.

■ TERMINAL FUNCTION OF DIRECT CONNECTOR

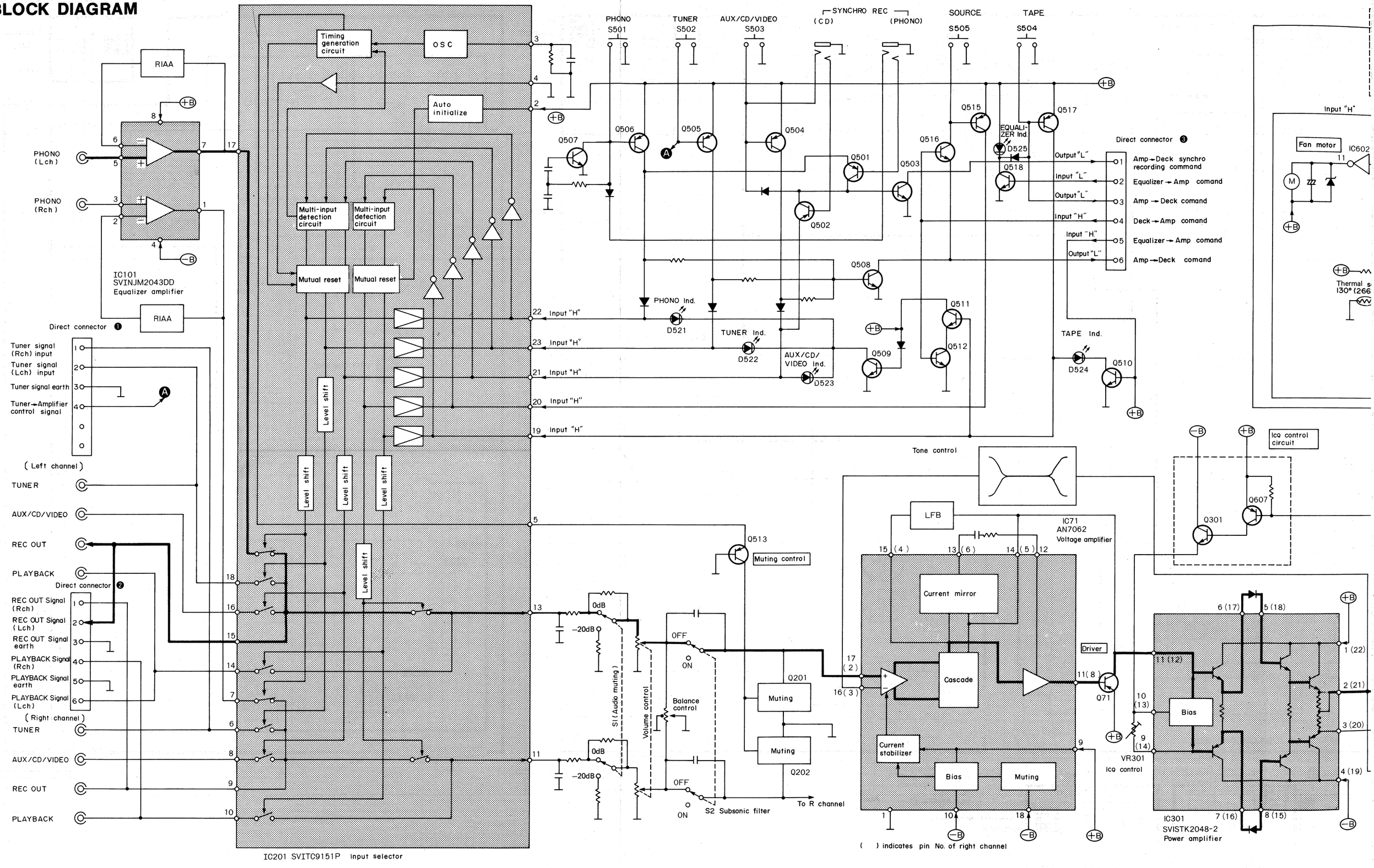
(. . . . .) Terminals not used.

(. . . . .) Terminals not used.


① Tuner signal (R)
② Tuner signal (L)
③ Tuner signal (GND)
④ Tuner ➡ Amp input changeover (Amp side is "tuner" with tuner power "on" or with preset button depressed.)
⑤ . . . . . .
⑥ . . . . . .
Tuner (ST–8)
Top side
Bottom side
① Amp ➡ Deck synchro recording command
② Equalizer ➡ Amp command (Amp side "graphic EQ" lights up with equalizer power "on".)
③ Amp ⟷ Deck command (Input changeover or playback start)
1. Playback starts on deck side with amp side "tape" depressed.
2. Amp side is "tape" with deck side "play" depressed.
Amp ➡ Equalizer command
① Rec out signal (R)
② Rec out signal (L)
③ Rec out signal (GND)
④ Playback signal (R)
⑤ Playback signal (GND)
⑥ Playback signal (L)
Amplifier (SU–6, SU–8)
Top side
Bottom side
④ Deck ➡ Amp (Amp side is "tape" with Deck power "on") Deck ➡ Amp (dbx changeover detection command)
⑤ Equalizer ➡ Amp (tape/source selector) command
⑥ Amp ➡ Deck stop command
Amp ➡ Equalizer command
① Signal input (R) [LINE IN]
② Signal input (L) [LINE IN]
③ Signal input (GND)
④ Signal output (R) [LINE OUT]
⑤ Signal output (GND)
⑥ Signal output (L) [LINE OUT]
Top side
Graphic Equalizer (SH–E4)
Bottom side
① Rec out signal (R)
② Rec out signal (L)
③ Rec out signal (GND)
④ Playback signal (R)
⑤ Playback signal (GND)
⑥ Playback signal (L)
① Signal input (R) [LINE IN]
② Signal input (L) [LINE IN]
③ Signal input (GND)
④ Signal output (R) [LINE OUT]
⑤ Signal output (GND)
⑥ Signal output (L) [LINE OUT]
Top side
Cassette deck (RS–6, RS–1W RS–8R)
Bottom side
① Amp ➡ Deck synchro recording command.
② . . . . . .
③ Amp ⟷ Deck input changeover or playback start command.
1. Playback starts on deck side with amp side "tape" or equalizer "tape" depressed.
④ Deck ➡ Amp command (Amp side is "tape" with Deck power "on") Deck ➡ Amp dbx changeover detection
⑤ . . . . . .
⑥ Amp ➡ Deck stop command

Terminal ⑥ is not used in RS–1W.

■ BLOCK DIAGRAM



PHONO S501 · TUNER S502 · AUX/CD/VIDEO S503 · SYNCHRO REC (CD) (PHONO) · SOURCE S505 · TAPE S504

Q501 Q502 Q503 Q504 Q505 Q506 Q507 Q508 Q509 Q510 Q511 Q512 Q515 Q516 Q517 Q518

EQUALIZER Ind. D525

PHONO Ind. D521 · TUNER Ind. D522 · AUX/CD/VIDEO Ind. D523 · TAPE Ind. D524

Direct connector ❸

1	Output "L"	Amp→Deck synchro recording command
2	Input "L"	Equalizer→Amp comand
3	Output "L"	Amp→Deck comand
4	Input "H"	Deck→Amp comand
5	Input "H"	Equalizer→Amp comand
6	Output "L"	Amp→Deck comand

22 Input "H" · 23 Input "H" · 21 Input "H" · 20 Input "H" · 19 Input "H"

Tone control

5 · 13 · 11

Q513 Muting control

0dB · −20dB · Volume control · Balance control · OFF · ON · S1 (Audio muting) · S2 Subsonic filter

Q201 Muting · Q202 Muting

To R channel

LFB

IC71 AN7062 Voltage amplifier

15 (4) · 13 (6) · 14 (5) · 12 · 17 (2) · 16 (3) · 1 · 10 · 18 · 9 · 11 (8)

Current mirror · Cascade · Current stabilizer · Bias · Muting · Driver

Q71

VR301

Icq control

Icq control circuit

Q301 · Q607

IC301 SVISTK2048-2 Power amplifier

6 (17) · 5 (18) · 11 (12) · 10 (13) · 9 (14) · 7 (16) · 8 (15) · 1 (22) · 2 (21) · 3 (20) · 4 (19)

Bias

( ) indicates pin No. of right channel

Signal sensor

IC601 MN1421STA Icq control

IC602 3 · 14 · 4 · 13

Input "H"

Fan motor · IC602 11 · 6

IC601 7 · 11 · 12 · 13 · 14 · 6 · 5 · 4 · 3 · 2 · 1

Calculation of optimum bias

Protection circuit

Muting

V_{DD}

17 Output "L" · 16 · 15 · 26 Output "H" · 25 · 8 · 9 · 10 · 18 · 19 · 20 · 22 · 27 · 28 · 23

Thermal sensor 130° (266°F) · Input "H" · Input "L"

Output "H" · Input "H" · Output "L"

Thermal sensor 60° (122°F) · IC602 2 · 15 · IC602 1 · 16

Q604 · Q603 (SAFETY) · (AUTO)

Power ON/OFF detection circuit

IC602 12 · 5

⊕ DC detector · ⊖ DC detector

Q611 · Q609 · Q610

Clock OSC adj.

Q403 Switching

Speaker protection relay

Overload detector circuit

Q605 · Q612 · Q601

Rch

Rectifier

Power transformer

AC line

Q402 Regulator

Q401 Regulator

Q519 · Q520

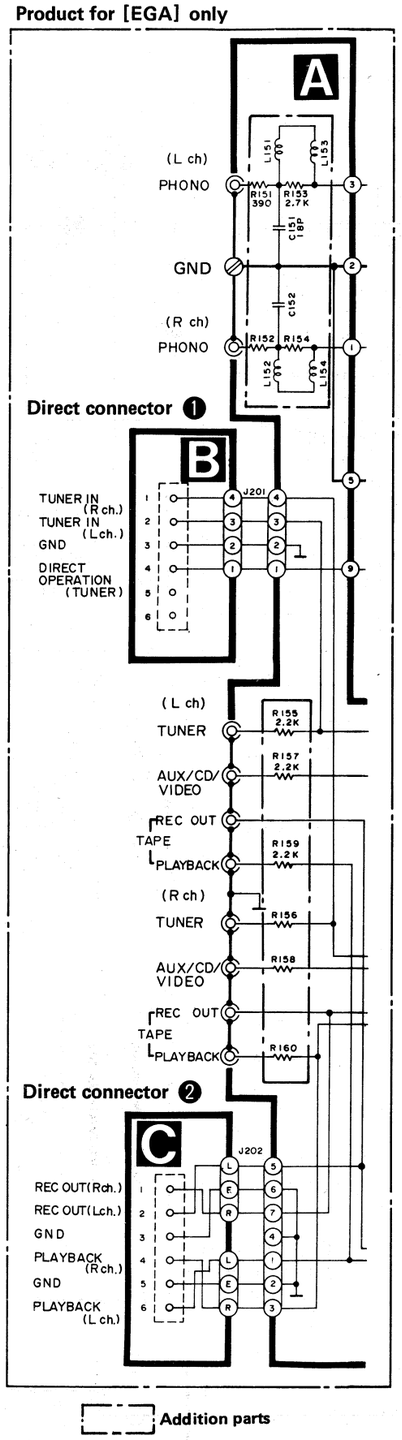
Power indicator

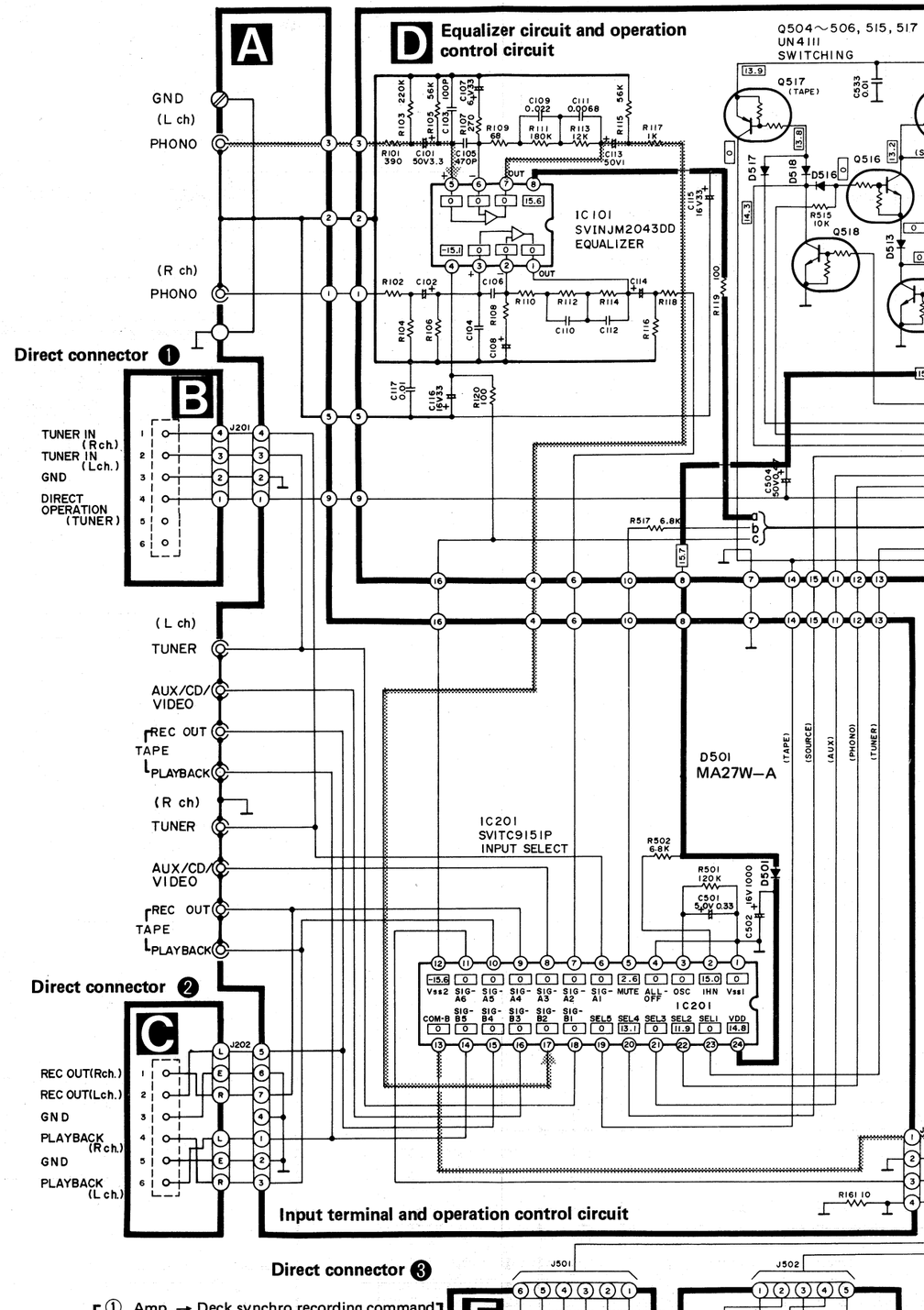
ON · OFF · S3 Super bass

Speaker terminal (L ch)

Headphones jack

Product for [EGA] only





D Equalizer circuit and operation control circuit

IC101
SVINJM2043DD
EQUALIZER

Q504~506, 515, 517
UN4111
SWITCHING

Q507, 508, 516, 518
UN4211
SWITCHING

D519 SWITCHING

D504~509, 513, 516~519
MA150

D526, 527
MA1047M
4.7V ZENER

Q517 (TAPE)
Q515 (SOURCE)
Q504 (AUX)
Q505 (TUNER)
Q506 (PHONO)
Q516
Q518
Q508
Q507

G Input selector switches

S503 (AUX/CD/VIDEO)
S502 (TUNER)
S501 (PHONO)
S504 (TAPE)
S505 (SOURCE)

Q501, 502
UN4111
SWITCHING

Q503
UN4211
SWITCHING

D502, 503, 514
MA150

Q501
Q503
Q502
D502

D501
MA27W-A

IC201
SVITC9151P
INPUT SELECT

D521~524
SVGSLV31DC3
INPUT IND

D525
SVGSLV31YC3M
GRAPHIC EQ IND

D510~512, 515, 520
MA150

Q513
2SA1015
MUTING
CONTROL

Q519
UN4111

Q509~512, 520
UN4211
SWITCHING

Q201
Q202

S1 (MUTING)
S2 (SUBSONIC FILTER)

Q201, 202
2SK301
MUTING

D607 LN346GP AUTO IND.
D608 LN446YP SAFETY IND.

H

PL1 (POWER IND)

Bass tone control
Treble tone control
Volume control
Balance control
Subsonic filter switch
Audio muting switch

D521: PHONO
D522: TUNER
D523: AUX/CD/VIDEO
D524: TAPE
D525: GRADHIC EQ

I Function circuit

Test point for ICQ adj. (L ch.)

Test point for ICQ adj. (R ch.)

K Thermister P.C.B.

Clock adj.

Test point for micro-computer clock adj.

Q603
UN4111
SWITCHING
(AUTO LED CONTROL)

Q604
2SC3112
SWITCHING
(POWER ON/OFF)

Q601
UN4111
INVERTER

D604
MA1062M
6.2V ZENER

IC601
MN1421STA
ICQ CONTROLLER

D601~603
MA150

J ICQ control circuit

Q607,608
2SA992
BIAS CONTROL

Q609, 611
2SC1815
DC DET

Q610
2SA1015
DC DET

D605,606
MA162A

Q605,606
2SA992
OVER LOAD DET

IC602
SVITD62501P
INVERTER

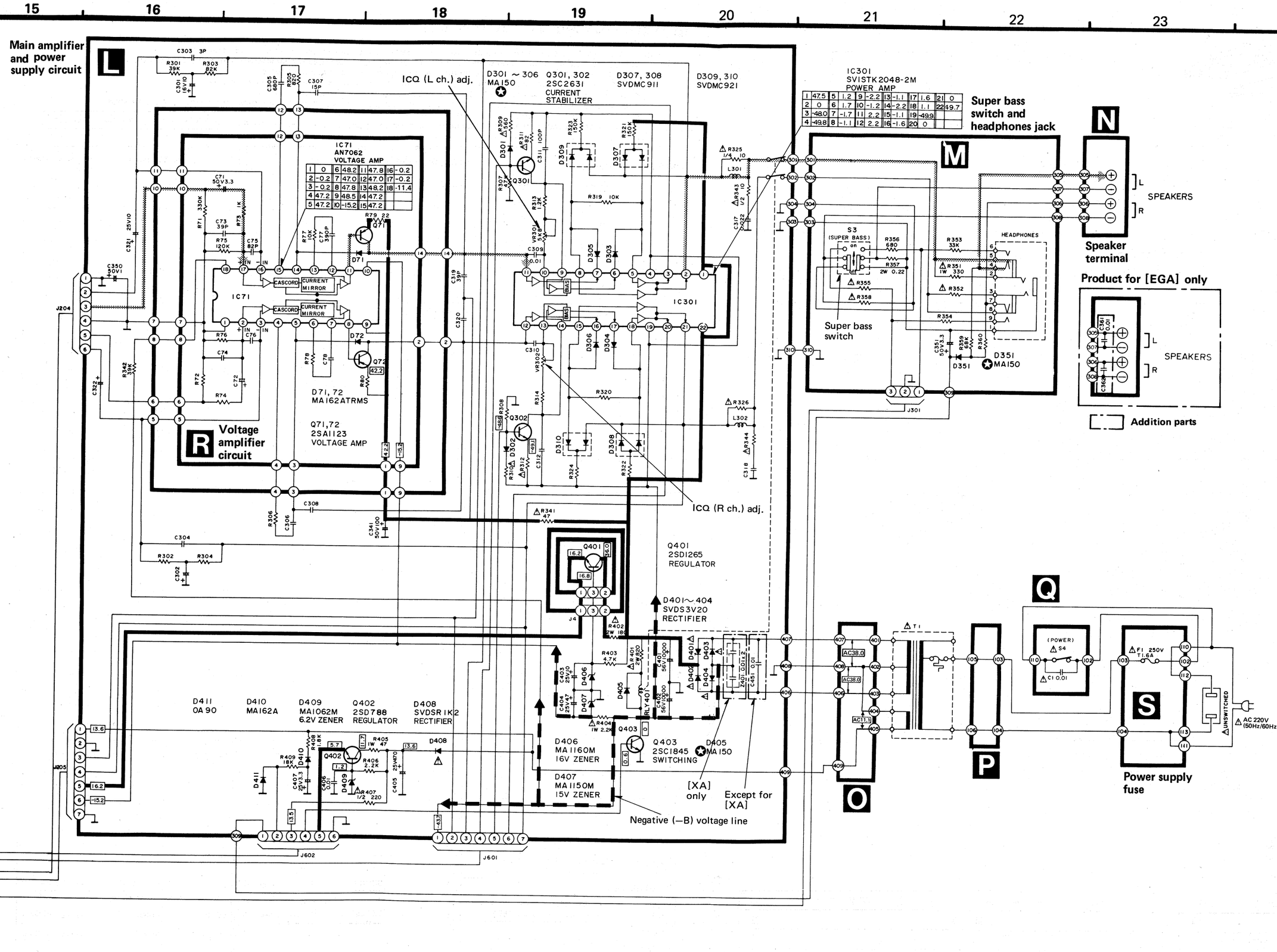
Q612
2SC1845
SWITCHING
(OVER LOAD DET)

E Connector 3

ng command

F Synchro-recording terminal

(PHONO) (CD)



15 16 17 18 19 20 21 22 23 24

A B C D E F

25 26

SCHEM

- The part No
  Part No. wit
  for replacem

Notes: 1. S1
2. S2
3. S3
4. S4
5. S501
6. S504
7. S506
8. The h
9. chass
peda
10.
11.
12.
13. Impo
Com
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CIRCUI

- Power sou

Product for [E

* [EK] is available
United Ki

Product for [X

* [XL] is availabl

■ SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with the development of new technology.)

- **The part No. of transistors, IC and diodes mentioned in the schematic diagram stand for production part No. Regarding the Part No. with ✪ mark, the production part No. are different from the replacement part No. Therefore, when placing an order for replacement parts, pleases use the part No. in the replacement parts list.**

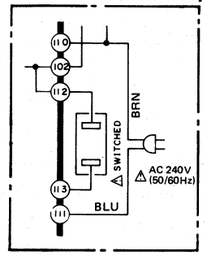
Notes:

1. **S1** : Audio muting switch in **"0dB"** position. 0dB ⟷ −20dB
2. **S2** : Subsonic filter switch in **"off"** position. off ⟷ on
3. **S3** : Super bass switch in **"off"** position. off ⟷ on
4. **S4** : Power switch in **"on"** position.
5. **S501 ~ 503** : Input selector switch in **"phono"** position. **S501**: phono, **S502**: tuner, **S503**: aux/CD/video
6. **S504, 505** : Tape-monitor selector switch in **"source"** position. **S504**: tape, **S505**: source
7. **S506 (XA) only** : Voltage selector switch in **"220V"** position. 120V ⟷ 110V ⟷ 220V ⟷ 240V
8. The headphone jack switch is being short-circuited. (With the headphone plug not inserted)
9. ▭ Indicated voltage values are the standard values for the DC electronic circuit tester (high impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
10. ▒▒▒ Phono signal lines of left channel.
11. ▬▶ Positive (+B) voltage lines.
12. ▬▬▶ Negative (−B) voltage line.
13. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

■ CIRCUITS TO BE CHANGED AND THE AREAS

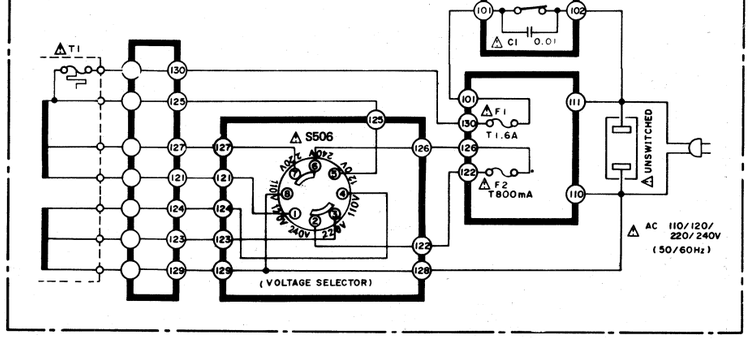
- **Power source circuit**

Product for [EK] only



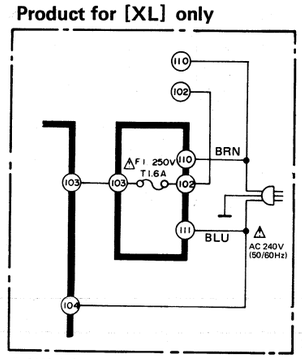
* [EK] is available in United Kingdom.

Product for [XA] only



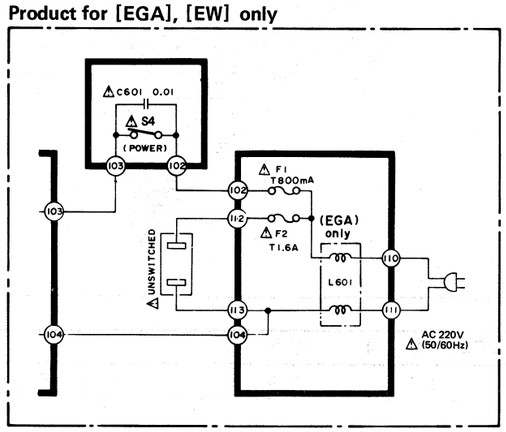
* [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.

Product for [XL] only



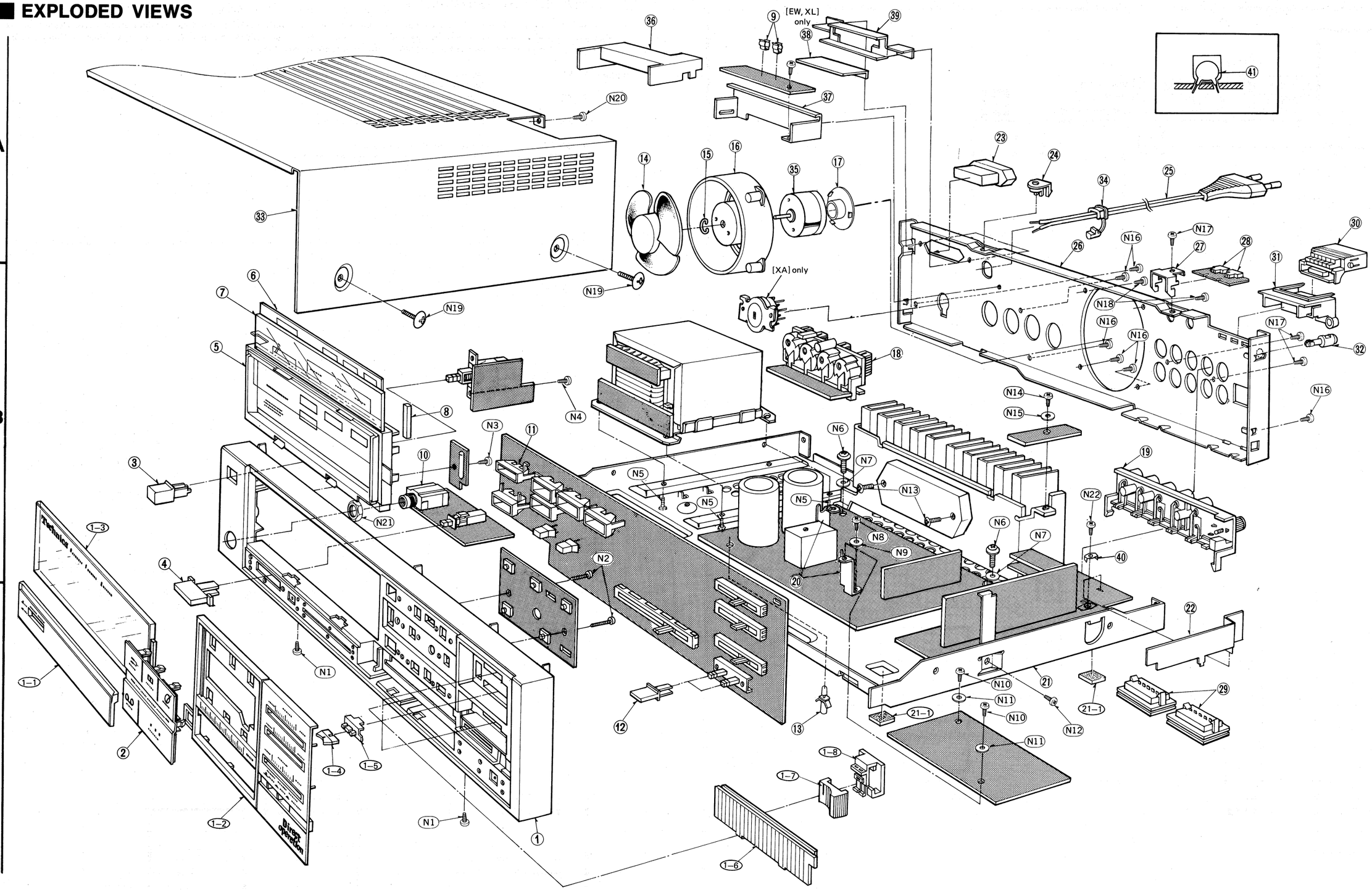
* [XL] is available in Australia.

Product for [EGA], [EW] only

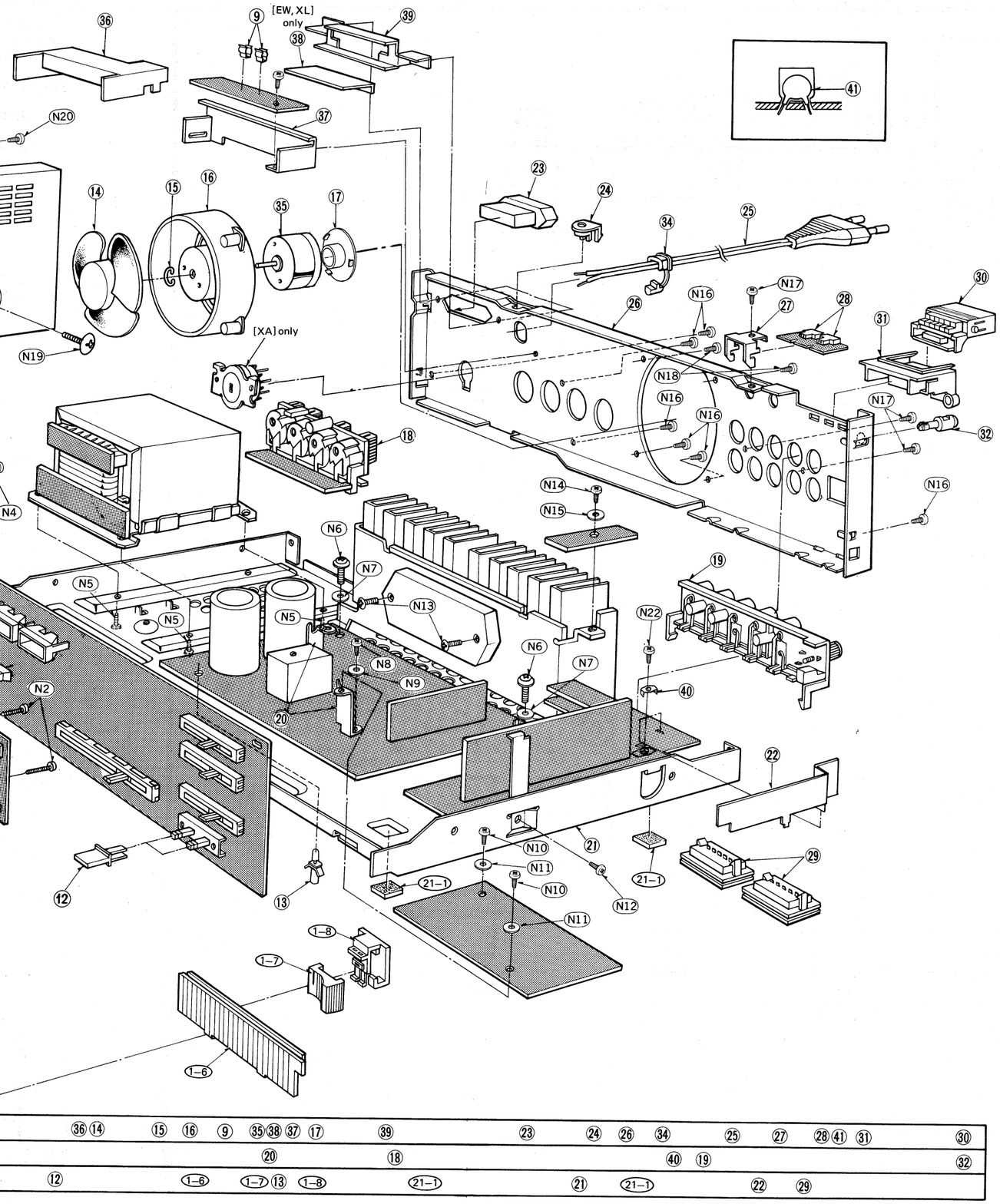


* [EGA] is available in F.R. Germany.
* [EW] is available in Switzerland.

■ EXPLODED VIEWS



| | | |



■ REPLACEMENT PARTS LIST

Notes: 1. Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
2. Important safety notice: Components identified by △ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. Ⓚ –marked parts are used for black only, while ○ –marked parts are for silver type only.
4. Part other than Ⓚ – and ○–marked are used for both black and silver type.
5. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
6. The Ⓢ mark is service standard parts and may differ from production parts.
7. The parenthesized numbers in the column of description stand for the quantity per set.

Black type model No. : SU-8(K)

Ref. No.		Part No.	Part Name & Description
INTEGRATED CIRCUITS			
IC71		AN7062	Voltage Amp
IC101		SVINJM2043DD	EQ Amp
IC201		SVITC9151P	Selector Amp
IC301		SVIK2048–2M	Power Amp
IC601		MN1421STA	Micro Computer (IcQ Control)
IC602		SVITD62501P	Inverter
TRANSISTORS			
Q71,72	Ⓢ	2SA1123–R	Driver
Q201,202		2SK301–S	Mute
Q301,302	Ⓢ	2SC2631–Q	IcQ Control
Q401		2SD1265–O	Regulator
Q402		2SD788–D	Regulator
Q403,612	Ⓢ	2SC1845–E	Switching
Q501,502, 504~506,515, 517,519,601, 603		UN4111	Switching
Q503,507~512, 516,518,520		UN4211	Switching
Q604		2SC3112	Switching (power on/off DET)
Q513,610	Ⓢ	2SA1015–Y	Switching (Muting Control)
Q605~608	Ⓢ	2SA992	Switching (DC, DET)
Q609,611	Ⓢ	2SC1815–Y	DC Detector
DIODES			
D71,72	Ⓢ	MA162A	Switching
D301~306, 351,405, 502~520, 601~603	Ⓢ	MA162A	Switching
D307,308		SVDMC911	Switching
D309,310		SVDMC921	Switching
D401~404	△	SVDS3V40	Rectifier
D406	Ⓢ	RD16EB	16V, Zener
D407		MA1150M	15V, Zener
D408	△	SVDSR1K2	Rectifier
D409,604		MA1062M	6V, Zener
D410,605,606		MA162A	DC, DET
D411	Ⓢ	20A90	Regulator
D501		MA27W–A	Switching
D526,527		MA1047–M	4.7V, Zener
D521~524		SVGSLV31DC3	LED, input
D525		SVGSLV31YC3M	LED, EQ
D607		LN346GP	LED, auto
D608		LN446YP	LED, Safety
COILS			
L151~154(EGA) only		ELQS181KB	Choke
L301,302		SLQY07G–30	Choke
L601(EGA)only		SLQZ650MH49	Choke
TRANSFORMER			
T1 [EK]	△	SLT5N433	Power Source
T1 [XA]	△	SLT5N435	Power Source
T1 [other]	△	SLT5N431	Power Source
VARIABLE RESISTORS			
VR201		EWAQA6X15A15	Volume
VR202		EWANF5X15G15	Balance
VR203,204		EWANA6X15C15	Tone
VR301,302		EVNK6AA00B53	IcQ Control
VR601		EVNK6AA00B14	400kHz Clock
THERMISTERS			
PS601		SRPBH47101	60°C(140°F)
PS602		SRPBA47101	130°C(266°F)
RELAY			
RLY401	△	SSY105	Speaker Protection

Ref. No.		Part No.	Part Name & Description
COMPONENT COMBINATIONS			
Z401 [XA] only		SXRFS203ZSM	0.01μF×2
Z601		EXBP84103M	10kΩ×4
LAMP			
PL1	△	XAMS6Q8C	Power Ind.
FUSES			
F1	△	XBA2C16TRO	250V, T1.6A
F2(XA)only	△	XBA2C31TRO	250V, T3.15A
F2(EGA,EW) only	△	XBA2C16TRO	250V, T1.6A
SWITCHES			
S1,2		SSH2069	Mute
S3		SSH1127	Super Bass
S4	△	SSH1071	Power
S501~505		SSG13	Selector
S506	△	ESE37219	Voltage Selector
CABINET and CHASSIS PARTS			
1	○	SGWU8–SE	Front Panel Ass'y (Silver) (1)
1	Ⓚ	SGWU8–KE	Front Panel Ass'y (Black) (1)
1–1	○	SGX7559–2	Ornament Plate, Super Bass(Silver) (1)
1–1	Ⓚ	SGX7559–3	Ornament Plate, Super Bass(Black) (1)
1–2	○	SGX7561–7	Grille, Volume (Silver) (1)
1–2	Ⓚ	SGX7561–9	Grille, Volume (Black) (1)
1–3	○	SGU379–1	Transparent Plate, LED Display (Silver) (1)
1–3	Ⓚ	SGU379–3	Transparent Plate, LED Display (Black) (1)
1–4		SBD69–1	Button, Treble, Bass, Balance (Silver) (3)
1–5		SHR9673	Holder, Treble, Bass, Balance (Black) (3)
1–6	○	SGXU8–SN	Holder Ass'y, Volume(Silver) (1)
1–6	Ⓚ	SGXU8–KE	Holder Ass'y, Volume(Black) (1)
1–7		SBD83–1	Button, Volume (Silver) (1)
1–8		SHR9675–1	Holder, Volume (Black) (1)
2	○	SBC629	Button Selector (Silver) (1)
2	Ⓚ	SBC629–1	Button, Selector (Black) (1)
3		SBC489	Button, Power (1)
4		SBC439	Button, Super Bass (1)
5		SMP357–1	Holder, Display (1)
6		SKDU8–SE	Filter Ass'y, Display (1)
7	○	SGU381–4	Thin Plate, Display (Silver) (1)

Ref. No.		Part No.	Part Name & Description
7	Ⓚ	SGU381–6	Thin Plate, Display (Black) (1)
8		SHG435	Rubber, Spacer (1)
9		SJT347	Crip, Fuse (2)
10		SJJ63F	Jack, Headphone(1)
11		SMP355	Holder, LED Ind. (with LED) (1)
12		SBC315–5	Button, Muting, Subsonic Filter (2)
13		SHR9693	Holder, Spacer (1)
14		SHE143	Fan (1)
15		SUS271	Spring, Fan (1)
16		SME95	Cover, Fan (1)
17		SME97	Cover, Fan (1)
18		SJF4437–1	Terminal Board, Speaker (1)
19		SJF3055N	Terminal Board, In/Out put (1)
20		SUW2109	Bracket, PCB (1)
21(EX)		SKUU8–SE	Bottom Board Ass'y(with SGT32410 & Foot) (1)
21(EK)		SKUU8–SK	Bottom Board Ass'y(with SGT32250 & Foot) (1)
21(EW)		SKUU8–SW	Bottom Board Ass'y(with SGT32370 & Foot) (1)
21(XA)		SKUU8–SX	Bottom Board Ass'y(with SGT32330 & Foot) (1)
21(other)		SKUU8–SG	Bottom Board Ass'y(with SGT32290 & Foot) (1)
21–1		SHS2481	Foot
22		SMC991–2	Shield Cover, PCB (1)
23(EK)	△	SJS9227	Socket, Outlet (1)
23(other)	△	SJS9225	Socket, Outlet (1)
24		SHR9631	Pin, Holder (1)
25(EK)		QFC1205M	AC Cord (1)
25(XA)		SJA111	AC Cord (1)
25(XL)		QFC1207MA	AC Cord (1)
25(other)		SJA138–3	AC Cord (1)
26(XA)		SGP3851–2A	Rear Panel (1)
26(XL)		SGP3851–3A	Rear Panel (1)
26(EK)		SGP3851–4A	Rear Panel (1)
26(other)		SGP3851–1A	Rear Panel (1)
27		SUW2099	Bracket, PCB (1)
28		SJJ75BK	Jack (2)
29		SJS9605	Connector (1)
30		SJS9607–1	Connector (1)
31		SHR9631	Connector (1)
32	○	SHE135	Pin, Holder(Silver) (1)
32	Ⓚ	SHE135–1	Pin, Holder(Black) (1)
33	○	SKC1111S3	Cabinet(Silver) (1)
33	Ⓚ	SKC1111BB3	Cabinet(Black) (1)
34(XL)		SHR131	Bushing, AC Cord (1)
34(EK)		SHR129	Bushing, AC Cord (1)
34(other)		SHR127	Bushing, AC Cord (1)

Ref. No.	Part No.	Part Name & Description
35	MMN6C2RKMS	Motor (1)
36	SMX823	Insulation Sheet, Fuse PCB (1)
37	SUW2151	Bracket, Fuse PCB (1)
38(EK,XL)only	SMX319−3	Insulation Sheet, AC Socket (1)
39	SMN1865	Bracket, AC Socket (1)
40	SUW2107	Bracket, Equalizer PCB (1)
41	SMX685	Insulation Cover, Capacitor (1)

SCREWS, WASHERS and NUT

Ref. No.	Part No.	Part Name & Description
N1 Ⓢ	XTB3+10BFZ	Tapping, ⊕3×10(2)
N2 Ⓢ	XTB3+16BFN	Tapping, ⊕3×16(2)
N3 Ⓢ	XTB3+8BFN	Tapping, ⊕3×8 (1)
N4 Ⓢ	XTB3+8BFN	Tapping, ⊕3×8 (1)
N5 Ⓢ	XTB4+8BFN	Tapping, ⊕4×8 (4)
N6 Ⓢ	XTB3+8BFN	Tapping, ⊕3×8 (2)
N7 Ⓢ	XWG3	Washer, ϕ3 (2)
N8 Ⓢ	XTB3+8BFN	Tapping, ⊕3×8 (2)
N9 Ⓢ	XWG3	Washer, ϕ3 (2)
N10 Ⓢ	XTB3+8BFN	Tapping, ⊕3×8 (2)
N11 Ⓢ	XWG3	Washer, ϕ3 (2)
N12 Ⓢ	XTB3+8BFN	Tapping, ⊕3×8 (1)
N13 Ⓢ	XTB3+16BFN	Tapping, ⊕3×16(2)
N14 Ⓢ	XTB3+8BFN	Tapping, ⊕3×8 (1)
N15 Ⓢ	XWG3	Washer, ϕ3 (1)
N16 Ⓢ	XTB3+8BFZ	Tapping, ⊕3×8 (5)
N17 Ⓢ	XTB3+8BFZ	Tapping, ⊕3×8 (2)
N18 Ⓢ	XTB3+8BFZ	Tapping, ⊕3×8 (2)
N19 ○	SNE2095−2	Screw, Cabinet (Silver) (4)
N19 Ⓚ	SNE2095−3	Screw, Cabinet (Black) (4)
N20 Ⓢ	XTB3+8BFZ	Tapping, ⊕3×8 (1)
N21 Ⓢ	XNS12	Nut, Head Phone Jack (1)
N22 Ⓢ	XTB3+8BFN	Tapping, ⊕3×8 (1)

ACCESSORIES

A1(EK)only ⚠	SJP5219−1	Plug	(1)
A2(EGA)only ⚠	XBA2C16TRO	Fuse	(3)
A3(XA)only ⚠	SJP5213−1	Plug	(1)
A4(XA)only ⚠	SJP5215	Plug	(1)
A5	SJP2257	Cord	(1)
A6(EGA)	SQF11997	Instruction Book	(1)
A6(EK)	SQF11999	Instruction Book	(1)
A6(EI)	SQF12001	Instruction Book	(1)
A6(XA)	SQF12003	Instruction Book	(1)
A6(XL)	SQF12005	Instruction Book	(1)
A6(other)	SQF11995	Instruction Book	(1)

PACKING PARTS

P1(XL) ○	SPG4737	Carton Box	(1)
P1(EF) ○	SPG4735	Carton Box	(1)
P1(EK) ○	SPG4733	Carton Box	(1)
P1(EK) Ⓚ	SPG4743	Carton Box	(1)
P1(other) ○	SPG4731	Carton Box	(1)
P1(other) Ⓚ	SPG4741	Carton Box	(1)
P2(XL)	SPS3917−3	Pad, Left	(1)
P2(other)	SPS3917−2	Pad, Left	(1)
P3(XL)	SPS3919−4	Pad, Right	(1)
P3(other)	SPS3919−3	Pad, Right	(1)
P4	SPS4379	Pad	(1)
P5	SPS4378	Pad	(1)
P6	SPP659	Polyethylene Sheet	(1)

■ RESISTORS & CAPACITORS

Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
3. The "Ⓢ" mark is service standard parts and may differ from production parts.
4. The unit of resistance is Ω(ohm), K = 1000Ω, M = 1000kΩ.
5. The unit of capacitance is μF (microfarad). P = 10^{-6} μF
6. Bracketed indications in Ref. No. columns spedify the area. Parts without these indications can be used for all areas.

Resistor Type	Wattage	Tolerance
ERD : Carbon ERG : Metal Oxide	10 : 1/8W 25 : 1/4W 1 : 1W 2 : 2W 3 : 3W S1 : 1/2W	J : ±5%

ERD10TLJ□□□ → Chip type carbon

Capacitor Type	Voltage: ECEA Type	Voltage: Other	Tolerance
ECEA : Electrolytic	1A : 10V	1H : 50V DC	J : ±5%
ECCD : Ceramic	1C : 16V	KC : 400V DC	K : ±10%
ECKD : Ceramic	1E : 25V	1 : 50V DC	Z : +80%, −20%
ECQM : Polyester	1H : 50V	56 : 56V	P : +100%, −0%
ECET : Electrolytic	50 : 50V		
ECEA ... N : Non Polar Electrolytic	25 : 25V		
ECQE : Polyester			

● RESISTORS

Ref. No.	Part No.	Value
R71,72	ERD10TLJ334U	330K
R73,74	ERD10TLJ102U	1K
R75,76	ERD10TLJ124U	120K
R77,78	ERD10TLJ103U	10K
R79,80	ERD10TLJ220U	22
R101,102 Ⓢ	ERD25FJ391	390
R103,104 Ⓢ	ERD25TJ224	220K
R105,106 Ⓢ	ERD25TJ563	56K
R107,108 Ⓢ	ERD25FJ271	270
R109,110 Ⓢ	ERD25FJ680	68
R111,112 Ⓢ	ERD25TJ184	180K
R113,114 Ⓢ	ERD25TJ123	12K
R115,116 Ⓢ	ERD25TJ563	56K
R117,118 Ⓢ	ERD25FJ102	1K
R119,120 Ⓢ	ERD25FJ101	100
R151,152 Ⓢ (EGA)only	ERD25FJ391	390
R153,154 Ⓢ (EGA)only	ERD25FJ272	2.7K
R155~160 Ⓢ (EGA)only	ERD25FJ222	2.2K
R161 Ⓢ (EGA)only	ERD25FJ100	10
R201,202 Ⓢ	ERD25FJ332	3.3K
R203,204 Ⓢ	ERD25TJ333	33K
R205,206 Ⓢ	ERD25FJ392	3.9K
R207,208 Ⓢ	ERD25TJ223	22K
R209,210 Ⓢ	ERD25FJ392	3.9K
R211,212 Ⓢ	ERD25FJ472	4.7K
R213,214 Ⓢ	ERD25FJ102	1K
R215,216 Ⓢ	ERD25TJ154	150K
R217,218 Ⓢ	ERD25FJ152	1.5K
R219,220 Ⓢ⚠	ERD25FJ560	56
R221,222 Ⓢ	ERD25TJ153	15K
R301,302 Ⓢ	ERD25TJ393	39K
R303,304 Ⓢ	ERD25TJ823	82K
R305,306 Ⓢ	ERD25FJ821	820
R307,308 Ⓢ	ERD25TJ473	47K
R309,310 Ⓢ⚠	ERD25FJ561	560
R311,312 Ⓢ⚠	ERD25FJ820	82
R313,314 Ⓢ	ERD25FJ122	1.2K
R319,320 Ⓢ	ERD25FJ103	10K
R321,322 Ⓢ	ERD25TJ154	150K
R323,324 Ⓢ	ERD25TJ154	150K
R325,326 Ⓢ⚠	ERD25FJ100	10
R341 Ⓢ⚠	ERD25FJ470	47
R342 Ⓢ	ERD25TJ393	39K
R343,344 ⚠	ERDS1FJ100	10
R351,352 Ⓢ	ERG1ANJ331	330
R353,354 Ⓢ	ERD25TJ333	33K
R355,356 Ⓢ	ERD25FJ681	680
R357,358 Ⓢ	ERX2ANJR22	0.22
R359,360 Ⓢ	ERD25TJ683	68K
R401	ERG2ANJ821	820
R402 Ⓢ	ERG2ANJ181	180
R403 Ⓢ	ERD25FJ472	4.7K
R404 Ⓢ	ERG1ANJ222	2.2K
R405 Ⓢ	ERG1ANJ470	47
R406 Ⓢ	ERD25FJ222	2.2K
R407 ⚠	ERDS1FJ221	220
R408 Ⓢ	ERD25FJ182	1.8K
R409 Ⓢ	ERD25TJ183	18K
R501 Ⓢ	ERD25TJ124	120K
R502 Ⓢ	ERD25FJ682	6.8K
R503,504 Ⓢ	ERD25TJ153	15K
R505,506 Ⓢ	ERD25TJ223	22K
R507 Ⓢ	ERD25TJ223	22K
R508 Ⓢ	ERD25TJ473	47K
R509 Ⓢ	ERD25FJ103	10K
R511 Ⓢ	ERD25TJ824	820K
R513,514 Ⓢ	ERD25FJ562	5.6K
R515 Ⓢ	ERD25FJ103	10K
R516 Ⓢ	ERD25TJ223	22K
R517 Ⓢ	ERD25FJ682	6.8K
R518,519 Ⓢ	ERD25FJ561	560
R520,521 Ⓢ	ERD25FJ561	560
R522 ⚠	ERDS1FJ471	470
R531 Ⓢ	ERD25FJ561	560
R601,602 Ⓢ	ERD25FJ103	10K
R603 Ⓢ	ERD25FJ272	2.7K
R604 Ⓢ	ERD25FJ471	470
R607 Ⓢ	ERD25FJ472	4.7K
R608 Ⓢ	ERD25FJ103	10K
R611 Ⓢ	ERD25FJ103	10K
R612 Ⓢ	ERD25FJ272	2.7K
R613,614 Ⓢ	ERD25FJ103	10K
R615 Ⓢ	ERD25FJ821	820
R617 Ⓢ	ERD25FJ472	4.7K
R618 Ⓢ	ERD25TJ333	33K
R619 Ⓢ	ERD25TJ223	22K
R620 Ⓢ	ERD25TJ333	33K
R621 Ⓢ	ERD25TJ183	18K
R622,623 Ⓢ	ERD25TJ181	180
R624 Ⓢ	ERD25FJ103	10K
R625,626 Ⓢ⚠	ERD25FJ331	330
R627,628 Ⓢ⚠	ERD25FJ821	820
R629,630 Ⓢ	ERD25FJ272	2.7K
R631,632 Ⓢ	ERD25FJ103	10K
R633,634 Ⓢ	ERD25TJ154	150K
R635 Ⓢ	ERD25TJ393	39K
R636,637 Ⓢ	ERD25FJ103	10K
R638,639 Ⓢ	ERD25FJ103	10K

● CAPACITORS

Ref. No.	Part No.	Value
C1 ⚠	ECKDKC103PF2	0.01
C71,72 Ⓢ	ECEA50Z3R3	3.3
C73,74 Ⓢ	ECCD1H390K	39P
C75,76 Ⓢ	ECCD1H820K	82P
C77,78 Ⓢ	ECKD1H391KB	390P
C101,102 Ⓢ	ECEA50Z3R3	3.3
C103,104 Ⓢ	ECCD1H101K	100P
C105,106 Ⓢ	ECKD1H471KB	470P
C107,108 Ⓢ	ECEA1CS330	33
C109,110	ECQM1H223KV	0.022
C111,112 Ⓢ	ECQM1H682JZ	0.0068
C113,114 Ⓢ	ECEA1CS330	33
C117 Ⓢ	ECKD1H103ZF	0.01
C151,152 Ⓢ (EGA)only	ECCD1H180KC	18P
C201,202 Ⓢ	ECKD1H331KB	330P

Ref. No.	Part No.	Value
C203,204	ECQM1H563KV	0.056
C205,206	ECQM1H183KV	0.018
C207,208	ECQM1H683KV	0.068
C209,210	ECQM1H222KV	0.0022
C211,212	ECQM1H183KV	0.018
C213,214 Ⓢ	ECEA50Z1	1
C215 Ⓢ	ECEA50Z1	1
C301,302 Ⓢ	ECEA1HS100	10
C303,304 Ⓢ	ECCD1H030CC	3P
C305,306 Ⓢ	ECKD1H681KB	680P
C307,308 Ⓢ	ECCD1H150KC	15P
C309,310 Ⓢ	ECKD1H103ZF	0.01
C311,312 Ⓢ	ECCD1H101K	100P
C317,318 Ⓢ	ECKD1H223ZF	0.022
C319,320 Ⓢ	ECCD1H390K	39P
C321,322 Ⓢ	ECEA1HS100	10

Ref. No.	Part No.	Value
C341 Ⓢ	ECEA1HS101	100
C350 Ⓢ	ECEA50Z1	1
C351 Ⓢ	ECEA50Z3R3	3.3
C361,362 Ⓢ (EGA)only	ECKD1H103ZF	0.01
C401,402	ECETS56V103U	10000
C403 Ⓢ	ECEA1HS100	10
C404 Ⓢ	ECEA1ES470	47
C405 Ⓢ	ECEA1ES471	470
C406 Ⓢ	ECKD1H103ZF	0.01
C407 Ⓢ	ECEA50Z3R3	3.3
C451	ECQE1104KN	0.1
C501 Ⓢ	ECEA50ZR33	0.33
C502 Ⓢ	ECEA1CS102	1000
C503 Ⓢ	ECKD1H103ZF	0.01
C504 Ⓢ	ECEA50ZR47	0.47

Ref. No.	Part No.	Value
C505,508 Ⓢ	ECEA50Z1	1
C509 Ⓢ	ECKD1H103ZF	0.01
C531 Ⓢ	ECEA1ES470	47
C532 Ⓢ	ECEA50ZR22	0.22
C533 Ⓢ	ECKD1H103ZF	0.01
C601 Ⓢ	ECEA1CS330	33
C602 Ⓢ	ECEA25Z4R7	4.7
C603 Ⓢ	ECKD1H103ZF	0.01
C604 Ⓢ	ECEA1AS101	100
C605 Ⓢ	ECCD1H151K	150P
C606 Ⓢ	ECEA25Z4R7	4.7
C607 Ⓢ	ECEA1HS100	10
C608 ⚠	ECEA1CN330S	33
C619,120 Ⓢ	ECEA50ZR22	0.22

Areas

* [EX] is available in Scandinavia.
* [EGA] is available in F.R. Germany.
* [EH] is available in Holland.
* [EB] is available in Belgium.
* [EW] is available in Switzerland.
* [EF] is available in France.
* [EK] is available in United Kingdom.
* [Ei] is available in Italy.
* [XA] is available in Southeast Asia, Oceania, Africa, Middle Near East and Central South America.
* [XL] is available in Australia.

Printed in Japan
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ORDER NO. HAD83122677C8–A

Stereo Integrated Amplifier SU-8/SU-8(K)

DEUTSCH

- This booklet includes the specifications and adjustment of Model SU-8 (Order No. HAD83122677C8) written in German, French and Spanish.
- File this booklet together with the service manual of Model SU-8.

- Dieses Büchlein umfaßt die technischen Daten und Justierungsanleitungen von Modell SU-8 (Bestell Nr. HAD83122677C8) in den Sprachen Deutsch, Französisch und Spanisch.
- Bewahren Sie dieses Büchlein zusammen mit dem Service-Handbuch von Modell SU-8. auf.

- Cette brochure comprend les spécifications et la mise au point du Modèle SU-8 (N° d'Ordre HAD83122677C8) écrites en allemand, en français et en espagnol.
- Classer cette brochure en même temps qu'avec le manuel de service du Modèle SU-8.

- Este librito incluye las especificaciones y ajuste de Modelo SU-8. (Pedido Nº HAD83122677C8) escritas en alemán, francés y español.
- Guardar este librito juntamente con el manual de servicio de Modelo SU-8.

DEUTSCH

■ TECHNISCHE DATEN (Spezifikationen Können infolge von Verbesserungen ohne Ankündigung geändert werden.)

(DIN 45 500)

■ VERSTÄRKERTEIL

Dauerton-Ausgangsleistung bei 20 Hz ~ 20 kHz	
beide Kanäle ausgesteuert	2 × 65W (8 Ω)
Dauerton-Ausgangsleistung bei 1 kHz	
beide Kanäle ausgesteuert	2 × 75W (8 Ω)
Gesamtklirrfaktor	
Nennleistung bei 20 Hz ~ 20 kHz	0,03% (8 Ω)
Nennleistung bei 1 kHz	0,8% (8 Ω)
halbe Nennleistung bei 20 Hz ~ 20 kHz	0,03% (8 Ω)
halbe Nennleistung bei 1 kHz	0,005% (8 Ω)
Intermodulationsfaktor	
Nennleistung bei 60 Hz: 7 kHz = 4:1, nach SMPTE, 8 Ω	0,03%
Leistungsbandbreite	
beide Kanäle ausgesteuert bei −3 dB	10 Hz ~ 30 kHz (8 Ω)
Restbrumm und Geräusch	0,7 mV
Dämpfungsfaktor	50 (8 Ω)
Eingangsempfindlichkeit und -impedanz	
PHONO	2,5 mV/47 kΩ
TUNER, AUX/CD/VIDEO	150 mV/27 kΩ
TAPE	150 mV/27 kΩ
Maximale TA-Eingangsspannung (1 kHz, eff.)	150 mV
Geräuschabstand	
Nennleistung (8 Ω)	
PHONO	78 dB (nach IHF, A: 81 dB)
TUNER, AUX/CD/VIDEO, TAPE	89 dB (nach IHF, A: 98 dB)
Frequenzgang	
PHONO	RIAA-Standardkurve ±0,8 dB (30 Hz ~ 15 kHz)
TUNER, AUX/CD/VIDEO, TAPE	10 Hz ~ 120 kHz (−3 dB)
Klangregler	
Baßregler (BASS)	50 Hz, +10 dB ~ −10 dB
Höhenregler (TREBLE)	20 kHz, +10 dB ~ −10 dB
Ausgangsspannung und -impedanz	
Aufnahmeausgang (REC OUT)	150 mV
Kanalabweichung (AUX/CD/VIDEO 250 Hz ~ 6300 Hz)	±1 dB
Übersprechdämpfung (AUX/CD/VIDEO, 1 kHz)	55 dB
Kopfhörerpegel und -impedanz	580 mV/330 Ω
Lautsprecherimpedanz	8 Ω ~ 16 Ω

■ ALLGEMEINE DATEN

Leistungsaufnahme	360 W
Netzspannung	
Für Kontinentaleuropa	Wechselstrom 50 Hz/60 Hz, 220V
Für andere Länder	Wechselstrom 50 Hz/60 Hz, 110V/120V/220V/240V
Abmessungen (B×H×T)	315 × 99 × 245 mm
Gewicht	5,8 kg

Bemerkung:
Der Gesamtklirrfaktor wurde mit einem digitalen Rauschspektrometer (Anlage H.P. 3045) gemessen.

■ MESSUNGEN UND JUSTIERUNGEN

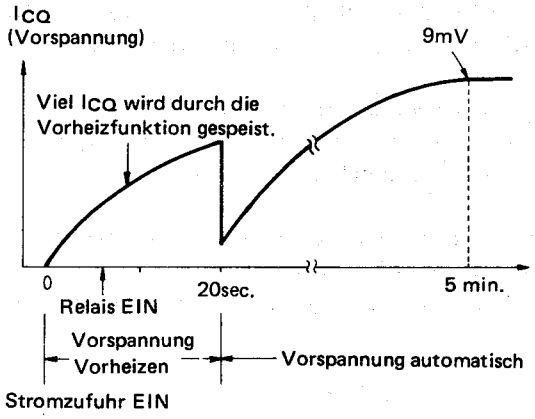
1. Justierung des Taktgebers (nach dem Auswechseln des Mikrocomputers)

(1) Das Oszilloskop an TP1 anschließen (Siehe Abb. 19).
(2) VR601 so justieren, daß die Periode der Wellenform 2,5μsec. beträgt.

2. Justierung des Leerlaufs (ICQ) (nach Reparatur des Hauptverstärkers)

(1) Nach der Reparatur ist die Lautstärke auf Minimum einzustellen, bevor der Netzschalter eingeschaltet wird, und es sollte nichts an die Lautsprecheranschlüsse angeschlossen werden.
(2) Den ICQ–Regler (VR301, 302) vollständig entgegen dem Rechtläufig drehen.
(3) Die an den Verstärker angelegte Spannung allmählich mit dem Spannungsregler erhöhen und vor Beginn der Justierung ist der Wert in der nachstehenden Tabelle zu überprüfen.
(4) Das elektronische Gleichstrom–Voltmeter an TP3 (+) und TP4 (–) (linker Kanal) oder TP5 (+) und TP6 (–) (rechter Kanal) anschließen.
(5) Nach Ablauf von 5 minuten nach Aufleuchten von Computer Drive Monitor "auto", VR301 (linker Kanal) oder VR302 (rechter Kanal) auf 9mV abgleichen.

* In diesem Gerät wird ICQ durch den Mikrocomputer gesteuert, und ICQ von ein wenig mehr als dem normalen Pegel wird durch "PREHEAT" während 20 Sekunden nach Einschalten der Stromzufuhr gespeist. Nachher werden der Ausgangspegel und die Transistortemperatur durch "AUTO" erfaßt, und dadurch wird ICQ automatisch gesteuert.



FRANÇAIS

■ CARACTERISTIQUES (Sujet á changement sans préaris.)

(DIN 45 500)

■ SECTION AMPLIFICATEUR

Puissance de sortie continue de 20 Hz~20 kHz,
les deux canaux en circuit 2 × 65W (8Ω)
Puissance de sortie continue à 1 kHz
les deux canaux en circuit 2 × 75W (8Ω)
Distorsion harmonique totale
à puissance nominale (20 Hz~20 kHz) 0,03% (8Ω)
à puissance nominale (1 kHz) 0,8% (8Ω)
à demi-puissance (20 Hz~20 kHz) 0,03% (8Ω)
à demi-puissance (1 kHz) 0,005% (8Ω)
Distorsion d'intermodulation
à puissance nominale à 60 Hz: 7 kHz=4:1, SMPTE, 8Ω 0,03%
Réponse de fréquences
les deux canaux en circuit, –3 dB 10 Hz~30 kHz (8Ω)
Bruit et ronflement résiduels 0,7 mV
Coefficient d'amortissement 50 (8Ω)
Sensibilité et impédance d'entrée
PHONO 2,5 mV/47kΩ
SYNTONISATEUR, AUX/CD/VIDEO (TUNER, AUX/CD/VIDEO) 150 mV/27kΩ
BANDE (TAPE) 150 mV/27kΩ
PHONO (tension d'entrée maximum, 1 kHz RMS) 150 mV
Signal/Bruit
à puissance nominale (8Ω)
PHONO 78 dB (IHF, A: 81 dB)
SYNTONISATEUR, AUX/CD/VIDEO, BANDE (TUNER, AUX/CD/VIDEO, TAPE) 89 dB (IHF, A: 98 dB)
Réponse de fréquence
PHONO Courbe nominale RIAA ±0,8 dB (30 Hz~15 kHz)
SYNTONISATEUR, AUX/CD/VIDEO, BANDE (TUNER, AUX/CD/VIDEO, TAPE) 10 Hz~120 kHz (–3 dB)
Réglage de la tonalité
BASSES (BASS) 50 Hz, +10 dB~ –10 dB
AIGUS (TREBLE) 20 kHz, +10 dB~ –10 dB
Tension de sortie et impédance
Sortie enregistrement (REC OUT) 150 mV
Equilibrage des canaux, AUX/CD/VIDEO 250 Hz~6 300 Hz ±1 dB
Séparation des canaux, AUX/CD/VIDEO 1 kHz 55 dB
Niveau de sortie des casques et impédance 580 mV/330Ω
Impédance de charge 8Ω~16Ω

■ DIVERS

Consommation	360W
Alimentation	
Pour l'Europe	CA 50 Hz/60 Hz, 220V
Autres	CA 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensions (L×H×Pr)	315 × 99 × 245 mm
Poids	5,8 kg

Remarques:
1. On mesure la distorsion harmonique totale au moyen d'un analyseur de spectre digital (Système H.P. 3045).
2. La Société NATIONAL-PANASONIC-FRANCE, importateur du matériel MATSUSHITA-ELECTRIC déclare que cet appareil est conforme aux prescriptions de la directive 76/889/C.E.E. (arrêté 14 Janvier 1980).

■ MESURAGES ET RÉGLAGES

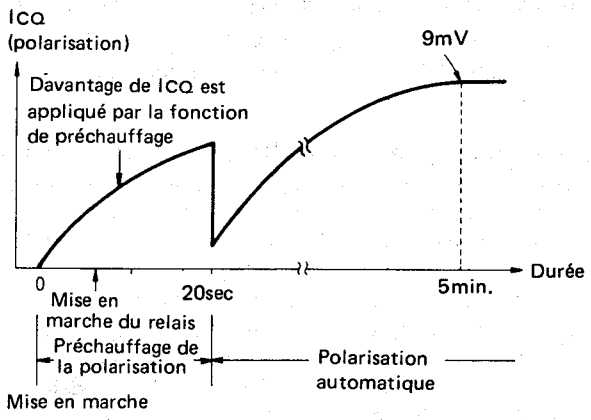
1. Ajustement des impulsions de rythme (après la remise en place du micro-ordinateur)

(1) Raccorder l'oscilloscope à TP1 . (Se référer à la Fig. 19.)
(2) Ajuster VR601 de telle sorte que la durée de la forme d'onde soit de 2,5μsec.

2. Ajustement de la marche à vide (ICQ) (après réparation de l'amplificateur principal)

(1) Après la réparation, régler le volume sonore au minimum avant la mise en circuit de l'interrupteur d'alimentation, et ne rien raccorder aux bornes des haut-parleurs.
(2) Tourner entièrement dans le sens des aiguilles d'une montre la commande ICQ (VR301 et 302).
(3) Augmenter graduellement la tension appliquée à l'amplificateur à partir de OV au moyen du régulateur de tension, et vérifier la valeur d'après le tableau ci-dessous avant de commencer l'ajustement.
(4) Brancher un voltmètre électronique à C.C. à TP3 (+) et à TP4 (–) (canal de gauche) ou à TP5 (+) et TP6 (–) (canal de droite).
(5) Lorsque 5 minutes se sont écoulées après que le contrôleur d'entraînement "auto" de l'ordinateur se soit éclairé, ajuster VR301 (canal de gauche) ou VR302 (canal de droite) sur 9mV.

* Dans cet appareil, ICQ est contrôlé par le micro-ordinateur et ICQ, un peu plus que le niveau normal, est appliqué par le "PRECHAUFFAGE" ("Preheat") pendant à peu près 20 secondes après la mise en marche. Après cela, le niveau de sortie et la température du transistor sont détectés par "AUTO", contrôlant automatiquement ainsi ICQ.



ESPAÑOL

■ ESPECIFICACIONES (Estas especificaciones están sujetas a cualquier cambio sin previo eviso.)

(DIN 45 500)

■ SECCION AMPLIFICADOR

Potencia continua de 20 Hz~20 kHz en ambos canales	2 × 65W (8Ω)
Potencia continua de 1 kHz en ambos canales	2 × 75W (8Ω)
Distorsión armónica total	
potencia de régimen a 20 Hz~20 kHz	0,03% (8Ω)
potencia de régimen a 1 kHz	0,8% (8Ω)
mitad de potencia a 20 Hz~20 kHz	0,03% (8Ω)
mitad de potencia a 1 kHz	0,005% (8Ω)
Distorsión por intermodulación potencia de régimen a 60 Hz: 7 kHz=4:1, SMPTE, 8Ω	0,03%
Ancho de banda de potencia con ambos canales, –3 dB	10 Hz~30 kHz (8Ω)
Zumbido residual y ruido	0,7 mV
Factor de amortiguamiento	50 (8Ω)
Sensibilidad e impedancia de entrada	
TOCADISC. (PHONO)	2,5 mV/47kΩ
SINTON., AUX/CD/VIDEO (TUNER, AUX/CD/VIDEO)	150 mV/27kΩ
GRAB. (TAPE)	150 mV/27kΩ
Voltaje máximo de entrada de PHONO (1 kHz, RMS)	150 mV
Relación de señal a ruido potencia de régimen (8Ω)	
TOCADISC. (PHONO)	78 dB (IHF, A: 81 dB)
SINTON., AUX/CD/VIDEO, GRAB. (TUNER, AUX/CD/VIDEO, TAPE)	89 dB (IHF, A: 98 dB)

Respuesta de frecuencia
TOCADISC. (PHONO) curva RIAA estándar ±0,8 dB (30 Hz~15 kHz)
SINTON., AUX/CD/VIDEO, GRAB. (TUNER, AUX/CD/VIDEO, TAPE) 10 Hz~120 kHz (–3 dB)
Controles de tono
BAJOS (BASS) 50 Hz, +10 dB~ –10 dB
AGUDOS (TREBLE) 20 kHz, +10 dB~ –10 dB
Voltaje e impedancia de salida
SAL. GRAB. (REC OUT) 150 mV
Equilibrio de canales, AUX/CD/VIDEO 250 Hz~6 300 Hz ±1 dB
Separación de canales, AUX/CD/VIDEO 1 kHz 55 dB
Impedancia y nivel de salida de los auriculares 580 mV/330Ω
Impedancia de carga 8Ω~16Ω

■ GENERAL

Consumo de energía 360W
Alimentación de energía
Para Europa continental CA 50 Hz/60 Hz, 220V
Para otros paises CA 50 Hz/60 Hz, 110V/120V/220V/240V
Dimensiones (An.×Al.×Prof.) 315 × 99 × 245 mm
Peso 5,8 kg

Nota:
La distorsión armónica total se mide con el analizador de espectro digital (sistema H.P. 3045).

■ MEDICIONES Y AJUSTE

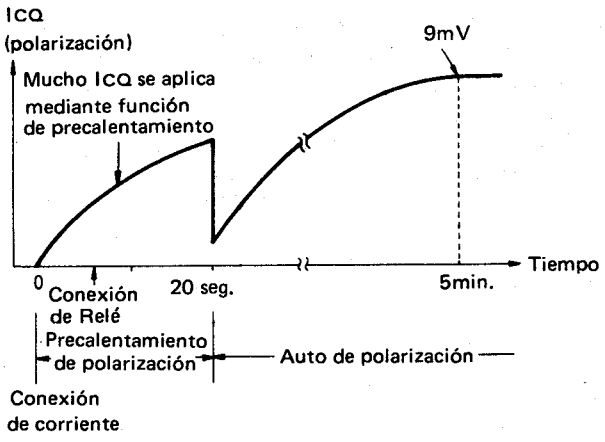
1. Ajuste de Reloj (después de reemplazar el microcomputador)

(1) Conectar el Osciloscopio a TP1 (Referir a la Fig. 19)
(2) Ajustar VR601 de manera que el periodo de forma de onda sea 2,5μseg.

2. Ajuste de Marcha en Vacìo (ICQ) (después de reparar el amp. principal)

(1) Después de la reparación, ajuste el volumen de sonido al mínimo antes de conectar el interruptor de alimentación, y no conecte nada a los terminales de altavoz.
(2) Gire completamente el control ICQ (VR301, 302) a la derecha.
(3) Aumente el voltaje aplicado al amplificador gradualmente desde 0V mediante un regulador de voltaje, y asegúrese del valor en la tabla de abajo antes de comenzar el ajuste.
(4) Conecte el voltímetro electrónico de CC a TP3 (+) y TP4 (–) (canal izquierdo) o TP5 (+) y TP6 (–) (canal derecho).
(5) Cuando 5 minutos han pasado después que el "auto" de monitor de impulsión de computador se enciende, ajuste VR301 (canal izquierdo) o VR302 (canal derecho) a 9mV.

* En este aparato, ICQ es regulado mediante computador, y ICQ un poco más del nivel normal se aplica mediante "PRECALENTAMIENTO" por unos 20 seg. después de conectarse la corriente. Después de eso, el nivel de salida y la temperatura de transistor se detectan mediatne "AUTO", regulando así automáticamente ICQ.



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